




# year 7 support curriculum

## chapter 1: place value & decimals

**[Recommended Time: 13-17 hours]**

### Contents

<input type="checkbox"/>	Reading and Writing Numbers up to 1 Million	Page 2
<input type="checkbox"/>	Reading and Writing Numbers up to 1 Million (Further Practice)	Page 4
<input type="checkbox"/>	<b>Reading and Writing Integers Match</b>	Page 5
<input type="checkbox"/>	Reading and Writing Millions	Page 6
<input type="checkbox"/>	<b>Millions Multiple Choice</b>	Page 8
<input type="checkbox"/>	Reading & Writing Integers Revivew	Page 9
<input type="checkbox"/>	Ordering Numbers	Page 11
<input type="checkbox"/>	Inequality Symbols	Page 13
<input type="checkbox"/>	Rounding to the nearest 10,100,1000	Page 14
<input type="checkbox"/>	Reading & Writing Tenths	Page 16
<input type="checkbox"/>	Reading & Writing Decimal Numbers 1	Page 18
<input type="checkbox"/>	Reading & Writing Decimal Numbers 2 (Mixed Numbers)	Page 20
<input type="checkbox"/>	Reading & Writing Decimal Numbers 3	Page 22
<input type="checkbox"/>	Comparing Decimals	Page 25
<input type="checkbox"/>	Comparing Decimals & Fractions (Using Place Value)  <small>extra challenge</small>	Page 27
<input type="checkbox"/>	Half Way Between  <small>extra challenge</small>	Page 29
<input type="checkbox"/>	<b>Sort it Out &amp; Guess My Number</b>  <small>extra challenge</small>	Page 30
<input type="checkbox"/>	Rounding to the Nearest Whole	Page 31
<input type="checkbox"/>	Rounding to 1 Decimal Place	Page 32
<input type="checkbox"/>	Rounding (Decimal Places)	Page 33
<input type="checkbox"/>	<b>Rounding Decimals Code Breaker</b>	Page 34
<input type="checkbox"/>	Chapter Review	Page 35
<input type="checkbox"/>	<b>Place Value Puzzles</b>	Page 38

# reading & writing numbers up to 1 million

## learn by heart

hundred thousands	ten thousands	thousands	hundreds	tens	units
100,000	10,000	1,000	100	10	1

Starting **from the right**, we place a comma after every 3 digits, so there is a comma between the hundreds and thousands column.

## examples

Write the number twenty thousand, one hundred and four in digits.

$$= 20,104$$

Write a comma when you say the word 'thousand' and put zeros in the empty columns.

Write the number 439580 using commas

$$= 439,580$$

We read this as 439 thousand, 580  
Each set of three digits is read together as a group.

## exercise 1a

- Which of these numbers is four thousand and nine?  
a) 409                      b) 4,009                      c) 40,009                      d) 4,900                      e) 4,090
- Write in digits:
  - 2 hundred and 8
  - 9 thousand and 4
  - 6 thousand and 3
  - 80 thousand, 5 hundred and 6
  - 6 hundred and 4 thousand
  - 3 hundred thousand and fifty
  - Sixty two thousand, eight hundred and seven
  - Four hundred and five thousand, two hundred and sixty
  - Nine hundred thousand and thirty two

3. Which column is wrong?

millions	thousands	hundreds	tens	units
----------	-----------	----------	------	-------

4. Which of these numbers is forty five thousand?

- a) 450                      b) 4,500                      c) 45,000                      d) 450,000                      e) 4,005,000

5. Write the number 800,000 in words.

6. Re-write these numbers using commas correctly:

- a) 5630                      b) 305968                      c) 50093                      d) 475690

7. Which of these numbers is eighty seven thousand?

- a) 87,000                      b) 870,000                      c) 8700                      d) 87,000,000

8. Circle the number with 2 thousands, 7 hundreds and 4 units:

- a) 2,407                      b) 27,040                      c) 200,704                      d) 2,704

9. Write the number 906,000 in words.

10. Write in digits: eighty thousand and nine.

11. Which of these numbers is forty thousand, two hundred?

- a) 4,200                      b) 402,000                      c) 42,000                      d) 40,200

12. Which of these numbers has a 7 in the ten-thousands column?

- a) 700                      b) 7,000                      c) 70,000                      d) 700,000

13. True or False: 7 tens = Seventy

14. True or False: Seventy Thousand = 70,000

15. Find all the numbers that have a 3 in the thousands column:

A	4302	B	9,304	C	30045	D	304,204
E	306.9	F	30,405	G	3.005	H	453,104
I	3000	J	903	K	2,300	L	23895

16. Which number comes after 9,999?

17. Which number comes after 999,999?

reading & writing numbers up to 1 million (further practice)

exercise 1b

1. Re-write these numbers using commas:

a) 8950

c) 10100

e) 40840

b) 10940

d) 200000

f) 50000

2. Which of these numbers is four hundred and six thousand?

a) 46,000

b) 406,00

c) 400,6000

d) 406,000

3. Write the number 902,000 in words.

4. Write the number **six hundred and two thousand and fifty three in digits.**

5. Which of these numbers are written incorrectly? Choose four answers.

a) 3,005

c) 9,3400

e) 24,34

g) 600,000

b) 430,00

d) 658,000

f) 98,400

h) 903,00

6. Write each of these numbers in digits:

a) Eighty four thousand and nine

c) Twelve thousand and seventy two

b) Twenty six thousand and fifty

d) Four hundred and sixty two thousand.

7. Which of these is eight hundred and two thousand?

a) 2,800

b) 800,2000

c) 802,000

d) 800,200

8. Fill in the empty columns:

				tens	units
--	--	--	--	------	-------

9. Which of these is one hundred thousand?

a) 100

b) 1000

c) 100,000,000

d) 100,000

10. Ten thousand has \_\_\_\_\_ zeros.

# Reading & Writing Integers Match

Match the numbers written in words at the top with their partners below.  
Record your pairs in the table at the bottom.

**A**  
Four Thousand and Eighty Two

**G**  
Eighty Two Thousand and Four

**B**  
Four Hundred and Eight Thousand

**H**  
Eight Hundred and Four Thousand

**C**  
Forty Eight Thousand and Two

**I**  
Forty Thousand, Eight Hundred

**D**  
Fourteen Thousand, Eight Hundred  
and Twenty

**J**  
Eight Thousand and Forty

**E**  
Four Hundred Thousand and Eighty

**K**  
Eighteen Thousand and Four

**F**  
Forty Thousand and Eight

**L**  
Eight Hundred and Forty Thousand,  
Eight Hundred

**M**  
48,002

**N**  
408,000

**O**  
8,040

**P**  
400,080

**Q**  
40,800

**R**  
4,082

**S**  
840,800

**T**  
40,008

**U**  
804,000

**V**  
82,004

**W**  
14,820

**X**  
18,004

A	B	C	D	E	F	G	H	I	J	K	L

## reading & writing millions

### learn by heart

1 million is the 7th column  
 1 million has 6 zeros  
 1 million = 1,000,000

10 million = 10,000,000  
 100 million = 100,000,000  
 1000 million = 1 billion (UK)

### example

Write the number 3 million in figures  
 = 3,000,000

*On the first comma (from the right), we say 'thousand'. On the second comma we say 'million'*

### exercise 1c

- Which of these numbers is eight million?  
 a) 800,000                      b) 8,000,000                      c) 8,000,000,000                      d) 80,000
- Which of these numbers is eight hundred million?  
 a) 800,000                      b) 8,000,000                      c) 800,000,000                      d) 80,000
- Write these numbers in digits, using commas:
 

a) 6 million	f) 2 million and eight
b) 18 million	g) 4 million and ten thousand
c) 431 million	h) 18 million and 6 thousand
d) 4 billion	i) 610 million and 18 thousand
- Which of these numbers is eighteen million and forty five thousand?  
 a) 18,450,000                      b) 18,45,000                      c) 18,045,000                      d) 18,000,45000
- Which of these numbers is written incorrectly? Circle all that apply.  
 a) 4,203,000                      b) 4,23,00                      c) 2,3000,000                      d) 18,456,000
- Write in words: 19,002,165

6. Fill in the column names:

					tens	units
--	--	--	--	--	------	-------

7. A million has \_\_\_\_\_ zeros

8. Ten million has \_\_\_\_\_ zeros

9. Which of these numbers is four hundred and six thousand?

a) 46,000

b) 406,00

c) 400,6000

d) 406,000

10. Write the number 1,302,000 in words.

11. Write 3005000 correctly using commas.

12. Write down the whole number that is directly after 1 million.

13. Write down the whole number that is directly after 1 billion.

## matching activity

Match the numbers at the top to those at the bottom. Record your answers in a table.

<sup>1</sup>  
Three million  
and sixty five

<sup>2</sup>  
Three thousand  
and six

<sup>3</sup>  
Three hundred  
and five  
thousand

<sup>4</sup>  
Thirty six  
thousand, five  
hundred and  
thirty

<sup>5</sup>  
Three hundred  
and fifty six  
thousand

<sup>6</sup>  
Thirty five  
thousand, five  
hundred and six

<sup>7</sup>  
Thirty six million,  
five hundred and  
fifty two

<sup>8</sup>  
Three hundred  
and thirty  
thousand, six  
hundred

<sup>9</sup>  
Thirty million,  
six hundred  
thousand

<sup>10</sup>  
Three million,  
fifty six  
thousand

1	2	3	4	5	6	7	8	9	10

A. 3,006

B. 36,530

C. 356,000

D. 30,600,000

E. 36,000,552

F. 3,056,000

G. 3,000,065

H. 305,000

I. 330,600

J. 35,506

# Millions Multiple Choice

In each row, choose the number that matches the question.

1	1 Million	A 1,000	B 10,000	C 100,000	D 1,000,000
2	2 Million and Fifty	A 2,050	B 2,000,50	C 2,000,500	D 2,000,050
3	15 Million and Nine Thousand	A 15,9000	B 15,009,000	C 15,090,000	D 15,000,900
4	Two Hundred Million	A 200,000,000	B 200,0000	C 200,000	D 20,200,000
5	3 Million and Six Thousand	A 3,6000	B 3,600,000	C 3,006,000	D 003,060,000
6	Seventy Two Million and Fifteen	A 072,000,150	B 72,000,15	C 72,000,015	D 72,015
7	Four Hundred and Eight Million	A 400,800,000	B 400,008,000	C 8,000,400	D 408,000,000
8	Seventeen Million and Twenty Thousand	A 17,020,000	B 17,20,000	C 17,200,000	D 170,020,000
9	Five Hundred and Two Thousand	A 502,000,000	B 500,2000	C 500,2,000	D 502,000
10	Nine Hundred and Ninety Million and Nine	A 900,090,009	B 990,000,009	C 990,000,090	D 900,900,09

## extension

1. What is the name for a thousand million?
2. How many zero are there in a million million?
3. How many zeros does a googol have?



## reading & writing integers review

### exercise 1d

- Which of these numbers is four hundred and nine million?  
a) 400,900,000      b) 409,000,000      c) 409,000      d) 490,000,000
- Write 608,009 in words.
- In the number 74,900, which column is the 4 in?
- 4 million + 3 thousand + 6 = \_\_\_\_\_
- 20 thousands + 7 hundreds = \_\_\_\_\_
- Write seven million and ninety five in digits.
- Write twenty six thousand in figures.
- Re-write this number using commas: 3948500
- Write forty two million and nine thousand in digits.
- True or False:
  - 3 million = 300000
  - 15 thousand = 150,000
  - 7 thousand and 2 = 7,002
  - 9 hundred million = 90000000
  - 8 hundred thousand = 800,000
  - 12 million and 12 = 12,000,12
- Which of these numbers is written using commas correctly?  
a) 19,00      b) 183,0000      c) 4,095,000      d) 201,009,09
- Which of these numbers is 1 billion?  
a) 1,000,000      b) 100,000,000      c) 1,000,000,000
- How many zeros are at the end of a million?
- True or False?
  - The number 54009 has a 4 in the hundreds column.
  - The number 652,109 has a 5 in the ten-thousands column.
  - The number 852,356 has a 2 in the thousands column.

12. Write each of these numbers in words. Be careful - they are all different!

<b>A</b> Four thousand, two hundred <i>4, 200</i>	<b>B</b> Forty thousand, two hundred	<b>C</b> Four hundred and two thousand	<b>D</b> Four hundred thousand and twenty
<b>E</b> Four thousand and twenty	<b>F</b> Forty thousand and twenty	<b>G</b> Four hundred thousand and two	<b>H</b> Four thousand and two
<b>I</b> Forty-two thousand	<b>J</b> Four hundred thousand, two hundred	<b>K</b> Forty thousand and two	<b>L</b> Four hundred and twenty thousand

13. Anna and Dan write the number "twelve thousand and nineteen" in digits.

Anna writes: *12, 000, 19*      Dan writes: *12, 019*

Who is right?

What has the other person done wrong?

14. Write each of these numbers in words.

a) 37,005 .....

b) 9,006,030 .....

c) 412,000 .....

15. Which of these numbers is four hundred million, thirty five thousand and nine?

a) 400,035,009      b) 400,35,009      c) 4,035,009      d) 400,035,09

16. Which of the following numbers have the digit 8 in the ten thousands place value? Select all that apply.

a) 809,400                      b) 180,013                      c) 8,432  
d) 8.0041                      e) 5,080,190                      f) 89,000

17. Which of the following numbers is equal to 6.2 million?

a) 62,000,000      b) 6.2000000      c) 6.200000      d) 6,200,000

18. Which of these numbers is 1 billion?

a) 1,000,000                      b) 100,000,000                      c) 1,000,000,000

## ordering numbers

### examples

True or false:  
4098 is **more** than 5 thousand ?

*False: 4,098 has only 4 thousands*

Is 1049596 greater than 1 million?

*1049596 =  
1,049,596 which is more than 1 million*

### exercise 1e

- Which of these numbers are **more** than 3 thousand? Choose all that apply.  
a) 504                      b) 3000                      c) 4098                      d) 2819
- Which of these numbers are **more** than Ten Thousand? Choose all that apply.  
a) 4,095                      c) 857                      e) 10495                      g) 1009  
b) 1209                      d) 1000                      f) 9587                      h) 92092
- Put these numbers in order of size, from smallest to largest:  

A	7,402	B	1 Thousand	C	983	D	1200
---	-------	---	------------	---	-----	---	------
- Which of these is smallest?  
a) 9 Hundred                      b) Ninety Five                      c) 923                      d) 9039
- Which of these numbers are bigger than five hundred thousand?  
a) 50,000                      c) 600,000                      e) 840800  
b) 90,200                      d) 5,500                      f) 40596
- True or False?  
a) 7503 is more than 7 Thousand  
b) 25985 is more than Twenty Thousand  
c) 9048 is more than 10 Thousand  
d) 4899 is more than Forty Eight Thousand
- Which of these is smallest?  
a) 109444                      b) 10094                      c) 10,940                      d) 100,094

8. Which of these numbers are greater than 1 million?  
 a) 109,000                      b) 130499                      c) 100000                      d) 1409488

9. In each row, select the largest number:

a)	543	5 Hundred	Fifty	59
b)	40 Thousand	3921	39,839	4,999
c)	600,000	75413	6126	60 Thousand
d)	4 million	41092	654,999	8657651
e)	70 Thousand	17,000	160,000	16 Thousand
f)	33 million	6,958,000	43,858,000	999,000

10. Put these numbers in order of size, from smallest to largest:

A 5 million	B 550,000	C 55102	D 505102	E 54133
----------------	--------------	------------	-------------	------------

11. Which of these numbers is the smallest?

- a) 217                      b) 72.5                      c) 207                      d) 702

12. Which of these numbers are greater than 1 million? Circle all that apply.

- a) 40009                      c) 1093.33                      e) 1000000  
 b) 20349                      d) 847000                      f) 10000000

13. Which number comes before 100,000?

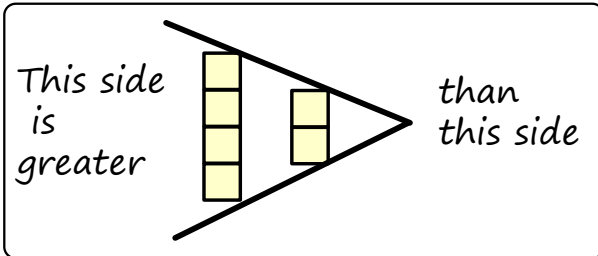
14. Which number comes after 999,999?

15. Which number comes after 999,999,999?

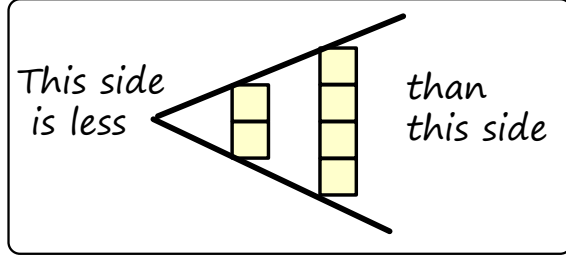
# inequality symbols

## learn by heart

$>$  : greater than



$<$  : less than



## exercise 1f

1. Which of these means 5 is greater than 3?

a)  $5 > 3$

b)  $5 < 3$

c)  $5 = 3$

d)  $5 / 3$

2. Decide whether these statements are true or false:

a)  $3 > 5$

f)  $4 < 2$

k)  $1,000 > 1 \text{ Thousand}$

b)  $6 > 4$

g)  $7 < 7$

l)  $3,849,000 > 1 \text{ million}$

c)  $2 > 2$

h)  $1,999 > 2000$

m)  $214,380 > 1 \text{ million}$

d)  $1 < 0$

i)  $20394 < 9039$

n)  $1,000,000 > 1 \text{ million}$

e)  $3 < 7$

j)  $1494 > 2 \text{ Thousand}$

o)  $1,939,938 > 1 \text{ billion}$

3. Which of the following means A is less than B?

a)  $A > B$

b)  $A = B$

c)  $B < A$

d)  $A < B$

4. Complete these statements using the symbols  $>$ ,  $<$  or  $=$

a)  $6 \underline{\hspace{1cm}} 5$

b)  $200 \underline{\hspace{1cm}} 300$

c)  $27 \underline{\hspace{1cm}} 27.0$

d)  $95 \underline{\hspace{1cm}} 100$

5. What is the **biggest** whole number that makes each statement true?

a)  $\underline{\hspace{1cm}} < 100$

b)  $\underline{\hspace{1cm}} < 500$

c)  $\underline{\hspace{1cm}} < 1000$

d)  $\underline{\hspace{1cm}} < 1500$

# rounding to the nearest 10, 100, 1000

## examples

Round 45 to the nearest 10

$$= 50$$

Round 573 to the nearest 100

$$= 600$$

Round 2,035 to the nearest 1,000

$$= 2000$$

## exercise 1g

1. Round these numbers to the nearest 10:

a) 64

c) 108

e) 15

g) 775

b) 92

d) 203

f) 596

h) 1025

2. Round these numbers to the nearest 100:

a) 556

c) 76

e) 3045

g) 14,250

b) 289

d) 1450

f) 56,980

h) 7,500

3. True or false: 426 rounded to the nearest hundred is 500

4. True or false: 91 rounded to to the nearest hundred is 100

5. True or false: 19 rounded to the nearest 100 is 0

6. Round each number to the nearest 1000:

a) 4892

c) 34,506

e) 14,006

g) 104,967

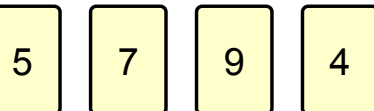
b) 2084

d) 9,809

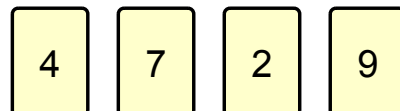
f) 94

h) 1,034,856

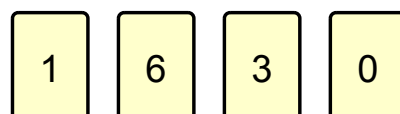
7. Arrange these cards to make a number that rounds to 9480, to the nearest ten:



8. Arrange these cards to make a number that rounds to 2700, to the nearest hundred:



9. Arrange these cards to make a number that rounds to 4000, to the nearest thousand:



10. Anya thinks of a number. She rounds it to the nearest ten. The answer is 40. What is the smallest number Anya could have been thinking of?
11. Sarah thinks of a number. She rounds it to the nearest hundred. The answer is 300. What is the smallest number Sarah could have been thinking of?
12. Which of these numbers has been rounded to the nearest hundred?  
 a) 30                      b) 300                      c) 320                      d) 1450
13. Which of these numbers round to 300, to the nearest 100?  
 a) 289                      b) 3000                      c) 242                      d) 349.9                      e) 250

rounds to 60

14. There are **8** numbers in the grid which round to 60, to the nearest 10. Can you find them?

A	45	B	58	C	67	D	32	E	64	F	59
G	54	H	51	I	72	J	60.5	K	56	L	68
M	55	N	53.5	O	40	P	60	Q	70	R	65.5
S	39	T	66	U	54.5	V	80	W	61	X	49

rounds to 500

15. There are **9** numbers in the grid which round to 500, to the nearest 100. Can you find them?

A	443	B	512	C	750	D	623	E	592	F	507
G	480	H	499	I	450	J	495	K	550	L	572
M	585	N	430	O	445	P	400	Q	520	R	500
S	399	T	1500	U	405	V	49.5	W	449.5	X	549

16. Eli thinks of a number. He rounds it to the nearest ten. Marcel thinks of a number. He rounds it to the nearest hundred. They both end up with the same answer! What numbers could they have been thinking of?

# reading & writing tenths

## learn by heart

Integer: a whole number

Decimal: a number including a decimal point, which separates the wholes from the parts.

The decimal point: is *to the right of* the units column

Tenth: When one unit is split into ten equal parts, each part is called a tenth.

As a fraction this is written as  $\frac{1}{10}$  and as a decimal it is 0.1

There are ten tenths in 1 unit.

Wholes and parts can be written together as a mixed number, e.g.  $1\frac{3}{10}$  means  $1 + \frac{3}{10}$

tens	units	●	tenths
10	1		0.1
10	1		$\frac{1}{10}$

## exercise 1h

1. Write as a decimal:

a) 3 tenths

c)  $\frac{5}{10}$

e)  $\frac{10}{10}$

g)  $3\frac{5}{10}$

b) 7 tenths

d)  $\frac{9}{10}$

f)  $1\frac{4}{10}$

h)  $15 + \frac{2}{10}$

2. Write as a fraction or mixed number:

a) 0.8

c) 0.1

e) 1.8

g) 12.6

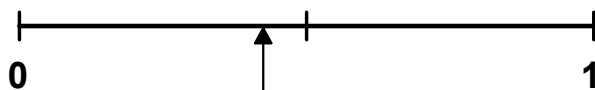
b) 0.4

d) 1.1

f) 3.9

h) 18.9

3. Which number does the arrow point to?



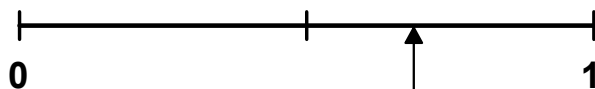
a) 0.2

c) 0.4

b) 0.3

d) 0.5

4. Which number does the arrow point to?



a) 0.2

c) 0.5

b) 0.3

d) 0.7



5. Which of these is 8 tenths?

a) 80

b)  $\frac{1}{8}$

c) 8.1

d) 0.8

6. Show the position of 0.3 on this number line:



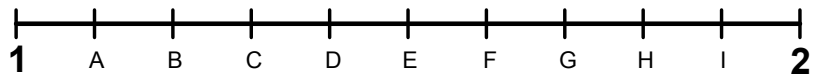
7. Show the position of 0.8 on this number line:



8. Show the position of  $\frac{9}{10}$  on this number line:



9. Show the position of 1.6 on this number line:



10. Show the position of  $3\frac{4}{10}$  on this number line:



11. '7 tenths' is written as a decimal like this \_\_\_\_\_ and as a fraction like this \_\_\_\_\_.

12. Which of these is the same as 'ten tenths'? Choose two answers.

a) 10

b)  $\frac{10}{10}$

c) 1

d)  $\frac{1}{10}$

13. We write 9 tens as \_\_\_\_\_ and 9 tenths as \_\_\_\_\_

14. Write as a decimal:

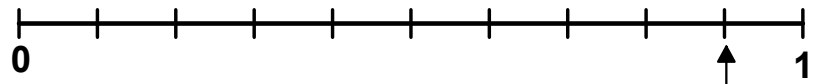
a)  $9 + \frac{3}{10}$

b)  $64\frac{1}{10}$

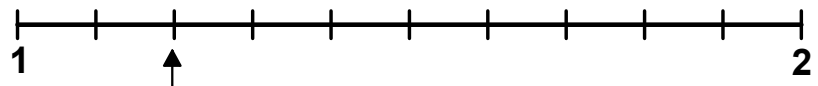
c)  $6 + 0.6$

d)  $42 + \frac{9}{10}$

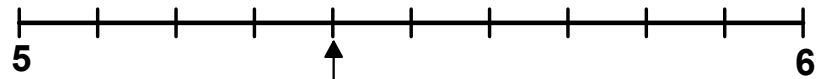
15. Which decimal number does the arrow point to?



16. Which decimal number does the arrow point to?



17. Which decimal number does the arrow point to?



18. As a decimal, 7 tens + 7 tenths = \_\_\_\_\_ and as a mixed number it is \_\_\_\_\_

# reading & writing decimal numbers 1

## learn by heart

Hundredth: When 1 whole is split into 100 equal parts, each part is called a hundredth and this is written 0.01 as a decimal or  $\frac{1}{100}$  as a fraction.  
The hundredths column is to the right of the tenths.

tens	units	tenths	hundredths	thousandths	ten thousandths
10	1	0.1	0.01	0.001	0.0001
10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$	$\frac{1}{10,000}$

## examples

Write '3 tenths'  
as a decimal  
= 0.3

Write  $\frac{5}{100}$  as a decimal  
= 0.05

In the number 46.803, what is the  
value of the digit 3?  
= 3 thousandths

## exercise 1

1. Write as a decimal:

a) 6 tenths

c) 5 thousandths

e)  $\frac{7}{10}$

g)  $\frac{3}{100}$

b) 7 hundredths

d) 8 tens

f)  $\frac{9}{100}$

h)  $\frac{1}{1000}$

2. State the value of the digit 6 in each of these numbers. The first is done for you.

a) 38.1**6**5

6 hundredths

b) **6**.01

c) 1.**6**924

d) 309.85**6**

e) 1.**6**93

f) 0.000**6**

3. Which of these numbers have 8 tenths? Circle two answers.

a) 8

b) 80

c) 800

d) 0.8

e) 0.80

f) 0.08

4. Which of these numbers has a 7 in the tenths column?

a) 700

b) 70

c) 7.0

d) 0.7

e) 0.07

5. Write in digits: 9 hundredths = \_\_\_\_\_ and 9 hundreds = \_\_\_\_\_

6. Write as a fraction:

a) 8 tenths

c) 0.009

e) 0.2

b) 9 thousandths

d) 0.06

f) 0.04

7. Fill in the names of the columns. The first one is done for you.

	● units			
--	---------	--	--	--

8. Which of these are equal to 0.3 ? Circle 2 answers:

a)  $\frac{3}{10}$

b)  $\frac{3}{100}$

c) 3 tenths

d)  $\frac{10}{3}$

9. Write in digits: 8 tens = \_\_\_\_\_ and 8 tenths = \_\_\_\_\_

10. Write as decimals:

a) Zero point three seven

b) One hundred point four nine zero

c) Sixty seven point three

d) Four thousand and eighty two point nine five

11. Which of these numbers has 9 tens and 9 tenths?

a) 9.9

b) 9.90

c) 90.9

d) 90.09

e) 900.9

### matching activity

Match each card on the left with one on the right:

A 0.6	B 0.5	C 0.003	M $\frac{3}{1000}$	N $\frac{6}{100}$	O 5 tenths
D 3.0	E 60	F 6.6	P 3 units	Q 6 units	R 6 tens
G 0.06	H 5	I 600	S 6 hundreds	T 6 tenths	U $\frac{5}{1000}$
J 0.005	K 6.0	L 50.5	V $6 + \frac{6}{10}$	M 5 tens + $\frac{5}{10}$	X 5 ones

A	B	C	D	E	F	G	H	I	J	K	L

## reading & writing decimals 2 (mixed numbers)

### learn by heart

Mixed Number: *an integer + a fraction, e.g.  $3\frac{1}{10}$  means 3 wholes +  $\frac{1}{10}$*

### example

Write as a decimal the number with:

a) Two tens, three units and four hundredths  $23.04$

b) Five units,  $\frac{3}{10}$  and  $\frac{7}{100}$   $5.37$

c)  $42\frac{1}{100}$   $42.01$

Use a zero to show an empty column.

### exercise 1j

1. Write these as decimals:

a)  $\frac{1}{10}$

c)  $\frac{3}{10}$

e)  $1\frac{4}{10}$

g)  $2\frac{1}{1000}$

b)  $\frac{9}{100}$

d)  $\frac{7}{1000}$

f)  $5\frac{8}{100}$

h)  $\frac{7}{10,000}$

2. Write these decimals as fractions or mixed numbers:

a) 0.6

c) 1.2

e) 0.007

b) 0.09

d) 3.04

f) 5.9

3. Which of these is 4 tens + 4 tenths?

a) 4.4

b) 40.4

c) 40.04

d) 400.4

4. Which of these is 3.07?

a) 37

b)  $3\frac{7}{10}$

c) 307

d)  $3\frac{7}{100}$

5. Write the following as decimals:

a) 4 tens + 2 tenths

d) 7 tens + 3 thousandths

b) 3 hundreds + 5 tenths

e) 9 tens + 5 tenths

c) 6 tenths + 4 hundredths

f) 6 thousands + 3 tenths

6. Write down the decimal number with exactly 4 tens, 3 tenths and 2 thousandths.

7. True or False: 60.8 means 6 tens + 8 tenths

8. In each number, write down the value of the digit in bold.

a) 38.**6**5

e) **1**.06

b) 1.**9**3

f) 3.00**5**

c) **4**5.9

g) 2,**6**49.6

d) 309.**8**7

h) 23.**6**78

9. Write  $\frac{1}{10} + \frac{2}{100} + \frac{3}{1000}$  as a decimal

10. Decide whether each statement is true:

a)  $\frac{6}{100} = 0.06$

h) 3 tens + 4 tenths = 40.3

b)  $\frac{3}{10} = 0.03$

i)  $\frac{3}{100} = 0.03$

c)  $\frac{3}{10} + \frac{4}{100} = 0.34$

j)  $\frac{3}{10} + \frac{2}{100} + \frac{4}{1000} = 0.324$

d)  $\frac{6}{1000} = 0.0006$

k)  $\frac{1}{8} = 0.8$

e) 7 hundreds = 0.07

l)  $\frac{8}{10} = 0.8$

f)  $1 + \frac{3}{100} = 1.03$

m)  $\frac{1}{10}$  is more than  $\frac{1}{100}$

g)  $2 + \frac{4}{10} = 240$

n)  $\frac{1}{4} = 0.4$

11. Complete these sentences:

a) 7.89 = \_\_\_\_ units + \_\_\_\_ tenths + \_\_\_\_ hundredths

b) 20.64 = 2 \_\_\_\_ + 6 \_\_\_\_ + \_\_\_\_ hundredths

c) 3.045 = \_\_\_\_ units + 4 \_\_\_\_ + 5 \_\_\_\_

## reading and writing decimal numbers 3

### examples

Decimal numbers are equivalent to fractions with denominators of 10, 100, 1000, ...

$$\begin{array}{c} 0.427 \\ \swarrow \quad \downarrow \quad \searrow \\ = \frac{4}{10} + \frac{2}{100} + \frac{7}{1000} \end{array}$$

#### Tenths

$$\frac{3}{10} = 0.3$$

$$3\frac{4}{10} = 3.4$$

$$\frac{14}{10} = 1.4$$

#### Hundredths

$$\frac{3}{100} = 0.03$$

$$\frac{24}{100} = 0.24$$

$$\frac{206}{100} = 2.06$$

#### Thousandths

$$\frac{3}{1000} = 0.003$$

$$\frac{37}{1000} = 0.037$$

$$\frac{409}{1000} = 0.409$$

We can read 0.23 as '23 hundredths' because it ends in the hundredths column. This helps us remember it is the same as  $\frac{23}{100}$

### exercise 1k

1. Write as a decimal:

a)  $\frac{12}{100}$

d)  $\frac{28}{1000}$

g)  $\frac{5}{1000}$

b)  $\frac{346}{1000}$

e)  $\frac{208}{1000}$

h)  $1\frac{34}{100}$

c)  $\frac{470}{1000}$

f)  $\frac{81}{1000}$

i)  $2\frac{109}{1000}$

2. Write as a fraction:

a) 0.49

c) 0.301

e) 0.009

b) 0.07

d) 0.047

f) 0.148

3.  $\frac{23}{1000}$  is the same as:

a) 0.23

b) 0.203

c) 0.023

d) 2.3

4. True or False?

a)  $0.64 = \frac{64}{100}$

c)  $1.08 = 1\frac{8}{100}$

e)  $\frac{1}{10,000} = 0.001$

b)  $\frac{91}{1000} = 0.91$

d)  $0.7 = \frac{7}{10}$

f)  $\frac{4}{100} = 0.4$

5. Write as a decimal:

a)  $\frac{27}{100}$

c)  $\frac{19}{100}$

e)  $\frac{3}{10} + \frac{1}{1000}$

b)  $\frac{172}{1000}$

d)  $2\frac{5}{10}$

f)  $4 + \frac{26}{100}$

6. The numbers 54.829 and  $\frac{28}{1000}$  have the same digit in which column?

a) units

b) tenths

c) hundredths

d) thousandths

7. Write as a fraction or mixed number:

a) 0.7

b) 0.92

c) 3.04

d) 0.609

8. Write down the decimal number that has exactly 7 hundreds, 3 tenths and 2 hundredths.

9. Write down the value of the digit '1' in each number:

a) 0.31

b) 2.1

c) 5.441

d) 0.6001

10. 6 hundreds and 6 tenths make:

a) 600.6

b) 0.66

c) 60.6

d) 600.06

11. Ten tenths make:

a) 10

b) 1

c) 0.1

d) 0.01

12. Write as a decimal

a)  $\frac{4}{10} + \frac{3}{100}$

b)  $6 + \frac{1}{1000}$

c)  $300 + \frac{3}{10} + \frac{3}{1000}$

13. Write 0.0409 as a fraction.

14. The numbers 4.128 and  $4\frac{1}{1000}$  have the same digit in which column?

a) units

b) tenths

c) hundredths

d) thousandths

15. 8 tens and 8 hundredths make:

a) 80.08

b) 80.8

c) 8.8

d) 8.08

e) 0.88

16. Fill in the blanks with fractions or integers:

a)  $0.402 = \underline{\quad} + \underline{\quad}$

c)  $20.64 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

b)  $3.99 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

d)  $305.106 = \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

16. Write as a decimal the number with:

a) 3 tens + 4 tenths

b) Twenty five hundredths

17. Write as a fraction or mixed number:

a) 0.1

b) 0.02

c) 1.005

d) 1.3

18. The numbers 1.49263 and  $\frac{296}{1000}$  have the same digit in which column?

19. True or False? All decimal numbers are less than 1 whole.

20. True or False? The largest decimal number is 0.99.

21. How many different decimal numbers are there between 0 and 1?

## Writing Decimals Match

Match these cards to their decimal equivalents at the bottom.

**1**  
2 hundreds

**2**  
2 hundredths

**3**  
2 tens +  
6 units

**4**  
2 thousands +  
2 units

**5**  
6 tens + 6 tenths

**6**  
6 tens

**7**  
6 thousandths

**8**  
6 thousands

**9**  
10 tenths

**10**  
2 tenths

**11**  
6 tenths +  
2 hundredths

**12**  
2 tenths +  
6 hundredths

**13**  
6 tenths

**14**  
2 tenths +  
6 thousandths

**15**  
2 tens +  
6 tenths

**16**  
6 tenths +  
6 hundredths

**17**  
6 hundreds

**18**  
2 tens +  
2 tenths

20.2	200	20.6	0.26	1	60	26	0.006	0.02
2002	6000	0.2	0.62	0.66	0.206	600	0.6	60.6

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	



## comparing decimals

### learn by heart

Decimal Places: the number of digits after the decimal point, e.g. 0.405 has 3 decimal places.

Adding zeros to the end of a decimal does not effect its size, so  $0.1 = 0.10 = 0.10000000$

### examples

Which is larger 0.4 or 0.34?

*0.4 = 0.40, so 0.4 is larger.*

*By adding a zero to 0.4, both numbers have two decimal places and we can easily see that '40 hundredths' is bigger than '34 hundredths'*

### exercise 1

- 0.6 is the same as:  
a) 0.600                      b) 6.0                      c) 0.06                      d) 0.66
- In each pair, select the **bigger** number. Or write = if they are equal.  
a) 0.6 or 0.07                      e) 0.9 or 0.9000                      i) 0.12 or 0.4  
b) 0.1 or 0.02                      f) 0.04 or 0.4                      j) 0.004 or 0.05  
c) 0.3 or 0.30                      g) 0.6 or 0.42                      k) 0.501 or 0.51  
d) 0.2 or 0.03                      h) 0.23 or 0.3                      l) 0.34 or 0.335
- Decide whether these statements are true or false:  
a)  $0.4 > 0.3$                       d)  $0.23 < 0.230$                       g)  $0.43 = 0.430$   
b)  $0.2 < 0.1$                       e)  $0.61 > 0.62$                       h)  $2.8 > 2.79$   
c)  $0.01 < 0.2$                       f)  $1 = 1.00$                       i)  $3.5 = 3.500$
- Which of these numbers is the **largest**?  
a) 0.92                      b) 0.149                      c) 0.840                      d) 0.09999
- Which of these numbers is the **smallest**?  
a) 0.02                      b) 0.4                      c) 0.009                      d) 0.013

6. Which is bigger, 1.6 or 2? Explain your answer.

7. In each row, decide which is the smallest number:

- a) 0.3 0.29 0.301 0.4 0.06
- b) 0.07 0.03 0.10 0.009 0.2
- c) 0.009 0.08 0.21 0.24 0.098
- d) 0.41 0.401 0.4 0.041 0.004
- e) 0.082 0.208 0.028 0.28 0.008

8. Which is bigger 0.8cm or 0.75cm?

9. Which is more, 0.205kg or 0.3kg?

10. Which of these numbers get bigger when you add a zero on the end?  
Choose all that apply.

- a) 45                      b) 230                      c) 4.65                      d) 8.9                      e) 3.0

11. Which of these numbers stays the same size when you remove the final 0?  
Choose all that apply.

- a) 450                      b) 5.30                      c) 2900                      d) 4,750

---

## Guess My Number

Use the clues to work out which number in the grid is being described.

My number is less than 0.7

My number is more than 0.2

My number has an 8 in the thousandths column

My number is less than 0.42

My number contains the digit 2

The digit in the hundredths column is odd

0.144	0.8	0.248
0.288	0.25	0.825
0.418	0.141	0.118
0.88	0.44	0.114
0.458	0.258	0.552

# comparing decimals & fractions (using place value)



## examples

Which is bigger,  $\frac{1}{10}$  or 0.7?

*0.7 because it equals  $\frac{7}{10}$*

Which is bigger, 0.42 or  $\frac{5}{10}$ ?

*$\frac{5}{10}$  because it equals 0.5*

## exercise 1m

1. Decide which number is bigger in each pair, or say if they are equal.

a) 0.3 or  $\frac{4}{10}$

g) 1.5 or  $1\frac{3}{10}$

m) 2.35 or  $2\frac{4}{10}$

b) 0.9 or  $\frac{8}{10}$

h) 1.06 or  $1\frac{6}{10}$

n) 1.6 or  $1\frac{6}{10}$

c) 0.6 or  $\frac{8}{100}$

i) 0.23 or  $\frac{3}{10}$

o) 0.008 or  $\frac{9}{1000}$

e)  $\frac{6}{10}$  or 0.60

k) 0.7 or  $\frac{7}{100}$

q)  $\frac{6}{100}$  or 0.51

f) 0.04 or  $\frac{4}{10}$

l) 0.66 or  $\frac{6}{10}$

r)  $\frac{23}{100}$  or 0.1

2. Which of these numbers are bigger than 0.6? Circle all that apply.

a) 0.304

b)  $\frac{6}{10}$

c) 1.0

d)  $\frac{3}{10}$

e)  $1\frac{4}{10}$

3. Which of the following are equal to 3 tenths?

a) 0.30

b) 0.03

c)  $\frac{3}{100}$

d) 30

e)  $\frac{3}{10}$

4. Put these in order of size, from smallest to largest: 0.07, 7.07,  $\frac{7}{10}$ , 7.1

5. Decide whether these statements are true or false:

a)  $0.3 > \frac{1}{10}$

e)  $\frac{3}{100} = 0.3$

i)  $8\frac{3}{10} = 83.1$

b)  $0.01 < 0.010$

f)  $1\frac{1}{10} = 1.10$

j)  $0.3 = \frac{3}{10}$

c)  $\frac{1}{10} < \frac{1}{100}$

g)  $0.4 = 0.40$

k)  $5\frac{4}{1000} = 0.504$

d)  $\frac{4}{10} = 0.4$

h)  $\frac{61}{100} = 0.061$

l)  $\frac{1}{1000} = 0.001$

6. Complete these statements using one of these symbols:  $<$   $>$   $=$

a)  $0.4$    $\frac{7}{100}$

d)  $0.019$    $\frac{9}{100}$

b)  $0.06$    $\frac{6}{100}$

e)  $3.28$    $3\frac{8}{100}$

c)  $0.72$    $\frac{7}{10}$

f)  $1.007$    $1\frac{7}{10}$

7. Which of these numbers are **smaller** than 0.05? Choose all that apply.

a) one tenth

b) one hundredth

c) one thousandth

d) six hundredths

e) four tenths

f) nine thousandths

8. Which of these are the same as 0.4? Circle three answers.

a) 0.40

b) 0.04

c)  $\frac{4}{10}$

d) 0.400

e)  $\frac{4}{100}$

9. First change each set of numbers to decimals.

Then write each set in order, from smallest to largest:

i) 

A	$\frac{1}{10}$
---	----------------

B	0.8
---	-----

C	$\frac{2}{100}$
---	-----------------

D	0.6
---	-----

ii) 

A	0.6
---	-----

B	0.66
---	------

C	$\frac{6}{100}$
---	-----------------

D	0.61
---	------

iii) 

A	$\frac{7}{1000}$
---	------------------

B	0.05
---	------

C	0.25
---	------

D	$\frac{4}{10}$
---	----------------

iv) 

A	2.45
---	------

B	2.427
---	-------

C	2.4
---	-----

D	2.47
---	------

v) 

A	$\frac{8}{100}$
---	-----------------

B	$\frac{8}{1000}$
---	------------------

C	$\frac{8}{10}$
---	----------------

D	0.85
---	------

vi) 

A	7
---	---

B	7.1
---	-----

C	$7\frac{3}{100}$
---	------------------

D	$\frac{7}{100}$
---	-----------------

10. In each pair, select the larger number, or write = if they are the same.

a)  $0.7$  or  $\frac{6}{10}$

d)  $0.19$  or  $\frac{8}{10}$

b)  $0.51$  or  $\frac{5}{100}$

e)  $1.07$  or  $1\frac{6}{100}$

c)  $1.6$  or  $1\frac{6}{10}$

f)  $0.26$  or  $\frac{3}{100}$

## half way between

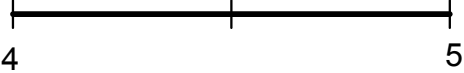


### example

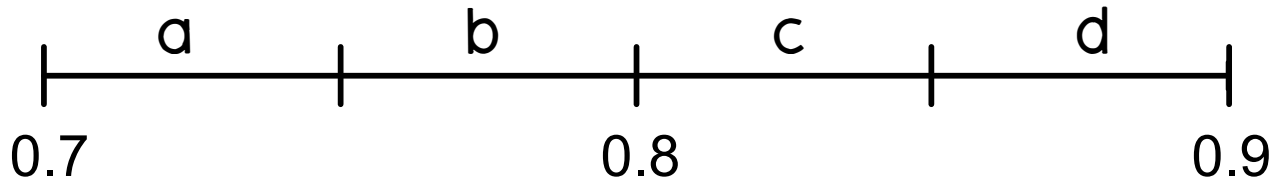
Write down the number half way between 0.3 and 0.31

$0.3 = 0.300$  and  $0.31 = 0.310$   
so half way between is  $0.305$

### exercise In

- Which of these numbers are between 3.4 and 3.7 ? Choose all that apply.  
a) 3.05                      b) 3.65                      c) 3.518                      d) 3.72
- Which of these numbers are **between** 0.3 and 0.4? Choose 2 answers.  
a) 0.32                      b) 3.3                      c) 0.034                      d) 0.40                      e) 0.356
- Which of these numbers are **between** 1.5 and 1.6? Choose all that apply.  
a) 1.45                      b) 1.59                      c) 1.62                      d) 1.7                      e) 1.501
- Write down a number that is between 4.2 and 4.3
- Write down the number that is half way between 0.4 and 0.5
- Write down the number that is half way between:  
a) 0.7 and 0.8                      d) 1.7 and 1.8                      g) 2 and 3  
b) 0.3 and 0.4                      e) 5 and 6                      h) 10 and 11  
c) 0.6 and 0.7                      f) 1.7 and 1.8                      i) 0.9 and 1
- On the number line, estimate the position of 4.6 
- Write down the number that is half way between 0.8 and  $\frac{9}{10}$
- Which of these numbers are greater than  $\frac{8}{10}$  and less than  $\frac{9}{10}$ ? Choose 2 answers.  
a) 0.085                      b) 0.82                      c) 0.10                      d) 0.9                      e) 0.802
- Which of these numbers is greater than  $\frac{4}{10}$  and less than 0.41?  
a) 0.408                      b) 0.45                      c) 0.40                      d) 0.7                      e) 0.39
- How many decimals are there between 1 and 2?

# Sort It Out!



Decide which section of the number line above each of these numbers would go in

0.801									
0.72	0.852		0.799	0.7501	0.78	0.74			
0.845	0.76	0.709	0.840	0.89	0.7499	0.887			0.820

a

b

c

d

## Guess My Number

Each statement describes a number in the grid.  
Can you work out which number?

301	1.03	0.01
0.3	1.3	3.03
0.301	0.103	0.13

**A.** This is the smallest number

**B.** This number equals  $\frac{3}{10}$

**C.** This number is greater than  $\frac{3}{100}$  but less than 1

**F.** This is the largest number

**D.** This number is greater than  $\frac{1}{10}$  but less than 0.12

**G.** This number is greater than 1 but less than  $1\frac{3}{10}$

**H.** This number equals  $\frac{13}{10}$

**E.** This number equals  $\frac{1}{10} + \frac{3}{100}$

**I.** This number equals  $3 + \frac{3}{100}$

# rounding (nearest whole)

## learn by heart

Sometimes we do not want to write all the digits of a decimal down and we can shorten it by rounding.

## example

Round 6.83 to the nearest whole (integer)  
= 7

An integer is a whole number. 6.83 has 6 wholes + some extra, so it is between 6 and 7 wholes. Half way between 6 and 7 would be 6.5, and 6.83 is more than this, so it is closer to 7.

## exercise 10

1. Which of these numbers are **integers**? Choose all that apply.

- a) 45.8                      b) 36                      c) 2.83                      d) 1.5                      e) 2

2. Round each number to the nearest whole:

- a) 3.6                                      c) 2.3                                      e) 6.5  
b) 4.7                                      d) 14.9                                      f) 201.3

3. Round each number to the nearest integer:

- a) 2.68                                      c) 3.15                                      e) 14.782  
b) 4.79                                      d) 0.86                                      f) 156.345

4. Complete the table:

Number	Nearest 10	Nearest 100	Nearest 1000	Nearest Whole Number
426.24				
690.104				

5. Find all the numbers that round to 17, to the nearest integer:

A 17.5	B 16.5	C 16.2	D 15.1	E 17.5	F 17.23
G 17.1	H 16.9	I 17.8	J 16.4	K 16.45	L 17.51

6. Arrange the cards to make a number that rounds to 21, to the nearest integer:



## rounding to 1 decimal place (d.p.)

### learn by heart

A number with 1 decimal place has 1 digit after the decimal point, e.g. 3.4

When rounding to 1 d.p, we look at the digit in the 2nd decimal place. If it is 5 or more, we round UP, meaning we increase the value of the digit in the 1st decimal place by 1.

### examples

Round:

- |                              |           |     |
|------------------------------|-----------|-----|
| a) 4.327 to 1 decimal place  | $4.3 27$  | 4.3 |
| b) 2.759 to 1 decimal place  | $2.7 59$  | 2.8 |
| c) 3.9997 to 1 decimal place | $3.9 997$ | 4.0 |
| d) 1.996 to the nearest 0.1  | $1.9 96$  | 2.0 |

→ This means 1 decimal place

### exercise 1p

- Which of these numbers have 1 decimal place? Choose all that apply.  
a) 43                      b) 4.5                      c) 2.75                      d) 62.0                      e) 200.30
- Round each number to 1 decimal place:  
a) 3.62                      d) 2.45                      g) 4.319                      j) 105.1098  
b) 1.84                      e) 13.19                      h) 26.453                      k) 459.821  
c) 2.01                      f) 4.55                      i) 19.65                      l) 8.98
- Find all the numbers that round to **3.5** to 1 decimal place:

A	3.48	B	3.41	C	3.45	D	3.34	E	3.41
F	3.51	G	3.62	H	3.55	I	3.56	J	3.509
K	3.63	L	3.81	M	3.67	N	3.39	O	3.409

- Round 4.87 to the nearest 0.1



# rounding (decimal places)

## example

Round 0.46889 to  
2 decimal places  
= 0.47

For 2 decimal places, the answer  
can either stay as 0.46, or  
increase to 0.47.  
What is in the middle of these? 0.465  
Is the number bigger or smaller than this? If it is  
bigger, round up to 0.47

## exercise 1q

- Which of these has 2 decimal places?  
a) 4.09                      b) 5.203                      c) 6.2                      d) 2.0
- Round each number to 2 decimal places:  
a) 4.085                      b) 23.1279                      c) 604.30567
- Round each number to 3 decimal places:  
a) 4.0858                      b) 23.127                      c) 604.30567
- Complete the table by rounding each number to 1, 2 and 3 decimal places.

	Number	to 1 d.p.	to 2 d.p.	to 3 d.p.
a)	3.7281			
b)	52.5917			
c)	0.1853			
d)	9.6458			
e)	4.0028			

- Which of these numbers is 24.976 correctly rounded to one decimal place?  
a) 24.9                      b) 24.10                      c) 25                      d) 24.98                      e) 25.0
- Which of these numbers are closer to 3 than 4?  
a) 3.2                      b) 3.5                      c) 3.8                      d) 3.09
- Show how these cards can be arranged to make a number that rounds to 27.5 to one decimal place.



# Rounding Decimals

## Code Breaker

Round each number as shown.

Find your answer in the code box and write the letter in the yellow box.

The letters should spell a secret message!

a)  $0.34$  to 1 d.p. = \_\_\_\_\_ =

b)  $0.483$  to 1 d.p. = \_\_\_\_\_ =

c)  $0.51$  to 1 d.p. = \_\_\_\_\_ =

d)  $1.05$  to 1 d.p. = \_\_\_\_\_ =

e)  $0.94$  to 1 d.p. = \_\_\_\_\_ =

f)  $1.22$  to 1 d.p. = \_\_\_\_\_ =

g)  $0.784$  to 1 d.p. = \_\_\_\_\_ =

h)  $0.784$  to **2 d.p.** = \_\_\_\_\_ =

i)  $0.809$  to 1 d.p. = \_\_\_\_\_ =

j)  $0.789$  to **2 d.p.** = \_\_\_\_\_ =

k)  $0.749$  to 1 d.p. = \_\_\_\_\_ =

l)  $1.234$  to **2 d.p.** = \_\_\_\_\_ =

m)  $0.781$  to **2 d.p.** = \_\_\_\_\_ =

code box

$0.3 = K$	$0.69 = Q$	$0.8 = I$	$1.2 = M$
$0.4 = X$	$0.7 = G$	$0.81 = R$	$1.21 = F$
$0.48 = ?$	$0.71 = V$	$0.9 = S$	$1.22 = U$
$0.5 = E$	$0.74 = C$	$0.91 = D$	$1.23 = A$
$0.51 = H$	$0.75 = B$	$1 = J$	$1.24 = T$
$0.6 = O$	$0.78 = L$	$1.01 = Z$	$1.3 = Y$
$0.65 = U$	$0.79 = N$	$1.1 = P$	$1.31 = K$

n)  $0.779$  to **2 d.p.** = \_\_\_\_\_ =

o)  $0.911$  to **2 d.p.** = \_\_\_\_\_ =

p)  $1.225$  to **2 d.p.** = \_\_\_\_\_ =

q)  $1.27$  to 1 d.p. = \_\_\_\_\_ =

r)  $0.777$  to **2 d.p.** = \_\_\_\_\_ =

s)  $0.58$  to 1 d.p. = \_\_\_\_\_ =

t)  $0.792$  to **2 d.p.** = \_\_\_\_\_ =

u)  $0.699$  to 1 d.p. = \_\_\_\_\_ =

# chapter review

## exercise 1r

1. Match the numbers on the left with the ones on the right:

A. Five million and eight	B. Fifty eight	K. 58	L. 8,050
C. Five hundred and eight thousand	D. Eight hundred and fifty thousand	M. 5,000,085	N. 8,000,505
E. Fifty thousand and eighty	F. Eight hundred and five	O. 850,000	P. 5,000,008
G. Eight million, five hundred and five	H. Eight thousand and fifty	Q. 50,080	R. 508,000
I. Eighty five	J. Five million and eighty five	S. 85	T. 805

Record your answers here:

A	B	C	D	E	F	G	H	I	J

2. Fill in the blanks:

- 4095 is made of \_\_\_ thousands, \_\_\_ hundreds, \_\_\_ tens and \_\_\_ units
- 21908 is made of \_\_\_ thousands, \_\_\_ hundreds, \_\_\_ tens and \_\_\_ units
- 10,602 is made of \_\_\_ thousands, \_\_\_ hundreds, \_\_\_ tens and \_\_\_ units
- 90002 is made of \_\_\_ thousands, \_\_\_ hundreds, \_\_\_ tens and \_\_\_ units
- 10,094,060 is made of \_\_\_ millions, \_\_\_ thousands, \_\_\_ hundreds, \_\_\_ tens and \_\_\_ units
- 9094500 is made of \_\_\_ millions, \_\_\_ thousands, \_\_\_ hundreds, \_\_\_ tens and \_\_\_ units
- 906405023 is made of \_\_\_ millions, \_\_\_ thousands, \_\_\_ hundreds, \_\_\_ tens and \_\_\_ units

3. Write these as fractions or mixed numbers:

a) 4 tenths

b) 0.005

c) 0.9

d) 0.06

e) 1.4

f) 0.4

g) 0.3

h) 0.002

4. Write these as decimals

a)  $\frac{3}{10}$

b)  $1\frac{3}{10}$

c)  $1\frac{6}{100}$

d)  $\frac{9}{1000}$

e)  $\frac{1}{10}$

f)  $\frac{2}{100}$

g)  $\frac{9}{100}$

h)  $61\frac{9}{10}$

5. Put these numbers in order of size from smallest to largest:

A $\frac{8}{10}$	B 4 hundredths	C 4 tens	D 0.4	E 5 tenths
------------------	----------------	----------	-------	------------

6. '8 tenths' as a decimal is \_\_\_\_\_ and as a fraction it is \_\_\_\_\_

7. Which is bigger, 0.304 or 0.4?

8. Write in digits: 7 tenths = \_\_\_\_\_ and 7 tens = \_\_\_\_\_

9. Complete the blanks with  $>$ ,  $<$  or  $=$

a)  $0.7$  \_\_\_\_\_  $\frac{7}{10}$

b)  $0.24$  \_\_\_\_\_  $0.204$

c)  $1.4$  \_\_\_\_\_  $1\frac{4}{10}$

10. True or false?

a)  $6 + \frac{3}{10} = 6.3$

c)  $20 + \frac{2}{100} = 20.2$

b)  $100 + \frac{1}{100} = 200$

d)  $\frac{1}{9} = 0.9$

11. Round 4.83 to the nearest whole number

12. Round 14.806 to 1 decimal place.

13. Write as a decimal:

a)  $\frac{29}{100}$

b)  $\frac{3}{100}$

c)  $\frac{42}{1000}$

d)  $2\frac{4}{100}$

e)  $\frac{9}{10}$

f)  $2\frac{3}{100}$

g)  $\frac{15}{1000}$

h)  $12\frac{9}{100}$

i)  $14\frac{1}{100}$

j)  $\frac{604}{1000}$

k)  $8\frac{5}{1000}$

l)  $\frac{3}{10} + \frac{4}{100} + \frac{5}{1000}$

12. In each of these numbers, write down the value of the digit in bold.

*Hint*  
Try putting a comma after the thousands to help read them

a) **4**05

f) 67**4**89

b) 10**2**34

g) **3**02914

c) **39**500

h) 8728**9**3

d) 103**9**4

i) 91**2**034

13. Which of these numbers is one hundred thousand and eighty?

a) 1,080

b) 100,000,80

c) 100,800

d) 100,080

14. Write the number two hundred and seven thousand and ninety three in digits.

15. Which number is 1 less than 100,000?

16. Which number is 1 less than 1 million?

### matching activity

17. Match the numbers to their descriptions. Record your answers in a table.

A. 4,039

B. 15,349

C. 6,245

D. 21,043

E. 54,061

F. 90,201

G. 4,372

H. 96,411

I. 87,124

J. 97,932

1 The digit 5 means 5 units

2 The digit 7 means 70

3 The digit 1 stands for Ten Thousand

4 The digit 5 stands for 50,000

5 The digit 6 means 6 Thousand

6 The digit 8 stands for 80 Thousand

7 This is the largest number

8 This is the smallest number

9 The digit 4 stands for Forty

10 There is a 0 in the thousands column

1	2	3	4	5	6	7	8	9	10

# Place Value Puzzles

In each of these puzzles, work out which number from the grid is being described:

## Puzzle 1

- My number is not an integer.
- My number has a 1 in the units column
- My number is greater than thirty
- My number is not 31.3
- My number has 1 in the hundredths column

1.01	301	31.1
3.1	3.101	31.3
30.1	31.01	1.03

## Puzzle 2

- My number is less than eighteen thousand
- My number is not 180
- My number is  $> 18$
- My number has 8 in both the tens and tenths columns

180	18.01	1.81
0.18	1800	188
180.8	18180	18.8

## Puzzle 3

- My number is  $\leq 0.2$
- My number is not 0.15
- My number is greater than one tenth
- My number has no hundredths

0.24	0.2	0.12
0.02	0.01	0.5
0.15	2.02	0.1

## Puzzle 4

- My number is  $< 44,000$
- My number is more than five thousand four hundred and fifty
- My number is not 5454
- My number has 5 hundreds
- My number is greater than fifteen thousand

14,500	15,501	45000
5401	5444	5454
14,534	4544	10,500

## Puzzle 5

What is the largest number that can be made by rearranging these cards?

1	2	4	.	8
---	---	---	---	---

## Puzzle 6

What is the **smallest** number that can be made by rearranging these cards?

5	3	2	.	6
---	---	---	---	---

## Puzzle 7

Put these numbers in order of size, from smallest to largest

0.04, 0.4, 4.4, 1.4, 0.104

## Puzzle 8

Complete these statements using the symbols




$=$ ,  $>$ ,  $<$

0.40	0.400
0.35	0.300
0.2	0.25
1.5	1.05
1.8	1.80
0.01	0.1
0.99	0.999

year 7 support curriculum  
chapter 1: place value & decimals

[Recommended Time: 13-17 hours]

Contents

<input type="checkbox"/>	Reading and Writing Numbers up to 1 Million	Page 2
<input type="checkbox"/>	Reading and Writing Numbers up to 1 Million (Further Practice)	Page 4
<input type="checkbox"/>	<b>Reading and Writing Integers Match</b>	Page 5
<input type="checkbox"/>	Reading and Writing Millions	Page 6
<input type="checkbox"/>	<b>Millions Multiple Choice</b>	Page 8
<input type="checkbox"/>	Reading & Writing Integers Revivew	Page 9
<input type="checkbox"/>	Ordering Numbers	Page 11
<input type="checkbox"/>	Inequality Symbols	Page 13
<input type="checkbox"/>	Rounding to the nearest 10,100,1000	Page 14
<input type="checkbox"/>	Reading & Writing Tenths	Page 16
<input type="checkbox"/>	Reading & Writing Decimal Numbers 1	Page 18
<input type="checkbox"/>	Reading & Writing Decimal Numbers 2 (Mixed Numbers)	Page 20
<input type="checkbox"/>	Reading & Writing Decimal Numbers 3	Page 22
<input type="checkbox"/>	Comparing Decimals	Page 25
<input type="checkbox"/>	Comparing Decimals & Fractions (Using Place Value)  <small>extra challenge</small>	Page 27
<input type="checkbox"/>	Half Way Between  <small>extra challenge</small>	Page 29
<input type="checkbox"/>	<b>Sort it Out &amp; Guess My Number</b>  <small>extra challenge</small>	Page 30
<input type="checkbox"/>	Rounding to the Nearest Whole	Page 31
<input type="checkbox"/>	Rounding to 1 Decimal Place	Page 32
<input type="checkbox"/>	Rounding (Decimal Places)	Page 33
<input type="checkbox"/>	<b>Rounding Decimals Code Breaker</b>	Page 34
<input type="checkbox"/>	Chapter Review	Page 35
<input type="checkbox"/>	<b>Place Value Puzzles</b>	Page 38

# reading & writing numbers up to 1 million

## learn by heart

hundred thousands	ten thousands	thousands	hundreds	tens	units
100,000	10,000	1,000	100	10	1

Starting **from the right**, we place a comma after every 3 digits, so there is a comma between the hundreds and thousands column.

## examples

Write the number twenty thousand, one hundred and four in digits.

$$= 20,104$$

Write a comma when you say the word 'thousand' and put zeros in the empty columns.

Write the number 439580 using commas

$$= 439,580$$

We read this as 439 thousand, 580  
Each set of three digits is read together as a group.

## exercise 1a

- Which of these numbers is four thousand and nine?  
a) 409      **b) 4,009**      c) 40,009      d) 4,900      e) 4,090
- Write in digits:
  - 2 hundred and 8      **208**
  - 9 thousand and 4      **9,004**
  - 6 thousand and 3      **6,003**
  - 80 thousand, 5 hundred and 6      **80,506**
  - 6 hundred and 4 thousand      **604,000**
  - 3 hundred thousand and fifty      **300,050**
  - Sixty two thousand, eight hundred and seven      **62,807**
  - Four hundred and five thousand, two hundred and sixty      **405,260**
  - Nine hundred thousand and thirty two      **900,032**



3. Which column is wrong?

millions	thousands	hundreds	tens	units
----------	-----------	----------	------	-------

4. Which of these numbers is forty five thousand?

- a) 450                      b) 4,500                      c) 45,000                      d) 450,000                      e) 4,005,000

5. Write the number 800,000 in words. **Eight hundred thousand**

6. Re-write these numbers using commas correctly:

- a) 5630                      b) 305968                      c) 50093                      d) 475690  
**5,630                      305,968                      50,093                      475,690**

7. Which of these numbers is eighty seven thousand?

- a) 87,000                      b) 870,000                      c) 8700                      d) 87,000,000

8. Circle the number with 2 thousands, 7 hundreds and 4 units:

- a) 2,407                      b) 27,040                      c) 200,704                      d) 2,704

9. Write the number 906,000 in words. **Nine hundred and six thousand**

10. Write in digits: eighty thousand and nine. **80,009**

11. Which of these numbers is forty thousand, two hundred?

- a) 4,200                      b) 402,000                      c) 42,000                      d) 40,200

12. Which of these numbers has a 7 in the ten-thousands column?

- a) 700                      b) 7,000                      c) 70,000                      d) 700,000

13. True or False: 7 tens = Seventy **True**

14. True or False: Seventy Thousand = 70,000 **True**

15. Find all the numbers that have a 3 in the thousands column:

A	4302	B	9,304	C	30045	D	304,204
E	306.9	F	30,405	G	3.005	H	453,104
I	3000	J	903	K	2,300	L	23895

16. Which number comes after 9,999? **10,000**

17. Which number comes after 999,999? **1,000,000**

# reading & writing numbers up to 1 million (further practice)

## exercise 1b

1. Re-write these numbers using commas:

- a) 8950    **8,950**                      c) 10100    **10,100**                      e) 40840    **40,840**  
b) 10940    **10,940**                      d) 200000    **200,000**                      f) 50000    **50,000**

2. Which of these numbers is four hundred and six thousand?

- a) 46,000                      b) 406,00                      c) 400,6000                      **d) 406,000**

3. Write the number 902,000 in words.    **Nine hundred and two thousand**

4. Write the number **six hundred and two thousand and fifty three in digits.**

**602,053**

5. Which of these numbers are written incorrectly? Choose four answers.

- a) 3,005                      **c) 9,3400**                      **e) 24,34**                      g) 600,000

- b) 430,00**                      d) 658,000                      f) 98,400                      **h) 903,00**

6. Write each of these numbers in digits:

a) Eighty four thousand and nine

**84,009**

c) Twelve thousand and seventy two

**12,072**

b) Twenty six thousand and fifty

**26,050**

d) Four hundred and sixty two thousand.

**462,000**

7. Which of these is eight hundred and two thousand?

- a) 2,800                      b) 800,2000                      **c) 802,000**                      d) 800,200

8. Fill in the empty columns:

<b>hundred thousands</b>	<b>ten thousands</b>	<b>thousands</b>	<b>hundreds</b>	tens	units
--------------------------	----------------------	------------------	-----------------	------	-------

9. Which of these is one hundred thousand?

- a) 100                      b) 1000                      c) 100,000,000                      **d) 100,000**

10. Ten thousand has   **4**   zeros.

# Reading & Writing Integers Match

Match the numbers written in words at the top with their partners below.  
Record your pairs in the table at the bottom.

**A**  
Four Thousand and Eighty Two

**G**  
Eighty Two Thousand and Four

**B**  
Four Hundred and Eight Thousand

**H**  
Eight Hundred and Four Thousand

**C**  
Forty Eight Thousand and Two

**I**  
Forty Thousand, Eight Hundred

**D**  
Fourteen Thousand, Eight Hundred  
and Twenty

**J**  
Eight Thousand and Forty

**E**  
Four Hundred Thousand and Eighty

**K**  
Eighteen Thousand and Four

**F**  
Forty Thousand and Eight

**L**  
Eight Hundred and Forty Thousand,  
Eight Hundred

**M**  
48,002

**N**  
408,000

**O**  
8,040

**P**  
400,080

**Q**  
40,800

**R**  
4,082

**S**  
840,800

**T**  
40,008

**U**  
804,000

**V**  
82,004

**W**  
14,820

**X**  
18,004

A	B	C	D	E	F	G	H	I	J	K	L
R	N	M	W	P	T	V	U	Q	O	X	S



6. Fill in the column names:

millions	hundred thousands	ten thousands	thousands	hundreds	tens	units
----------	-------------------	---------------	-----------	----------	------	-------

7. A million has 6 zeros

8. Ten million has 7 zeros

9. Which of these numbers is four hundred and six thousand?

a) 46,000

b) 406,00

c) 400,6000

d) 406,000

10. Write the number 1,302,000 in words. **1 million, three hundred and two thousand**

11. Write 3005000 correctly using commas. **3,005,000**

12. Write down the whole number that is directly after 1 million. **1,000,001**

13. Write down the whole number that is directly after 1 billion. **1,000,000,001**

## matching activity

Match the numbers at the top to those at the bottom. Record your answers in a table.

<sup>1</sup>  
Three million and sixty five

<sup>2</sup>  
Three thousand and six

<sup>3</sup>  
Three hundred and five thousand

<sup>4</sup>  
Thirty six thousand, five hundred and thirty

<sup>5</sup>  
Three hundred and fifty six thousand

<sup>6</sup>  
Thirty five thousand, five hundred and six

<sup>7</sup>  
Thirty six million, five hundred and fifty two

<sup>8</sup>  
Three hundred and thirty thousand, six hundred

<sup>9</sup>  
Thirty million, six hundred thousand

<sup>10</sup>  
Three million, fifty six thousand

1	2	3	4	5	6	7	8	9	10
G	A	H	B	C	J	E	I	D	F

A. 3,006

B. 36,530

C. 356,000

D. 30,600,000

E. 36,000,552

F. 3,056,000

G. 3,000,065

H. 305,000

I. 330,600

J. 35,506

# Millions Multiple Choice

In each row, choose the number that matches the question.

1	1 Million	A 1,000	B 10,000	C 100,000	D 1,000,000
2	2 Million and Fifty	A 2,050	B 2,000,50	C 2,000,500	D 2,000,050
3	15 Million and Nine Thousand	A 15,9000	B 15,009,000	C 15,090,000	D 15,000,900
4	Two Hundred Million	A 200,000,000	B 200,0000	C 200,000	D 20,200,000
5	3 Million and Six Thousand	A 3,6000	B 3,600,000	C 3,006,000	D 003,060,000
6	Seventy Two Million and Fifteen	A 072,000,150	B 72,000,15	C 72,000,015	D 72,015
7	Four Hundred and Eight Million	A 400,800,000	B 400,008,000	C 8,000,400	D 408,000,000
8	Seventeen Million and Twenty Thousand	A 17,020,000	B 17,20,000	C 17,200,000	D 170,020,000
9	Five Hundred and Two Thousand	A 502,000,000	B 500,2000	C 500,2,000	D 502,000
10	Nine Hundred and Ninety Million and Nine	A 900,090,009	B 990,000,009	C 990,000,090	D 900,900,09

## extension

1. What is the name for a thousand million? **1 billion**
2. How many zero are there in a million million? **1 000 000 000 000 (12)**
3. How many zeros does a googol have? **100**

# reading & writing integers review

## exercise 1d

- Which of these numbers is four hundred and nine million?  
a) 400,900,000      **b) 409,000,000**      c) 409,000      d) 490,000,000
- Write 608,009 in words.      **Six hundred and eight thousand and nine**
- In the number 74,900, which column is the 4 in?      **Thousands**
- 4 million + 3 thousand + 6 =           **4,003,006**
- 20 thousands + 7 hundreds =           **20,007**
- Write seven million and ninety five in digits.      **7,000,095**
- Write twenty six thousand in figures.      **26,000**
- Re-write this number using commas: 3948500      **3,948,500**
- Write forty two million and nine thousand in digits.      **42,009,000**
- True or False:  
a) 3 million = 300000      **F**      d) 9 hundred million = 90000000      **F**  
b) 15 thousand = 150,000      **F**      e) 8 hundred thousand = 800,000      **T**  
c) 7 thousand and 2 = 7,002      **T**      f) 12 million and 12 = 12,000,12      **F**
- Which of these numbers is written using commas correctly?  
a) 19,00      b) 183,0000      **c) 4,095,000**      d) 201,009,09
- Which of these numbers is 1 billion?  
a) 1,000,000      b) 100,000,000      **c) 1,000,000,000**
- How many zeros are at the end of a million?      **6**
- True or False?  
a) The number 54009 has a 4 in the hundreds column.      **False**  
b) The number 652,109 has a 5 in the ten-thousands column.      **True**  
c) The number 852,356 has a 2 in the thousands column.      **True**

12. Write each of these numbers in words. Be careful - they are all different!

<b>A</b> Four thousand, two hundred <i>4, 200</i>	<b>B</b> Forty thousand, two hundred <i>40,200</i>	<b>C</b> Four hundred and two thousand <i>402,000</i>	<b>D</b> Four hundred thousand and twenty <i>400,020</i>
<b>E</b> Four thousand and twenty <i>4020</i>	<b>F</b> Forty thousand and twenty <i>40,020</i>	<b>G</b> Four hundred thousand and two <i>400,002</i>	<b>H</b> Four thousand and two <i>4002</i>
<b>I</b> Forty-two thousand <i>42,000</i>	<b>J</b> Four hundred thousand, two hundred <i>400,200</i>	<b>K</b> Forty thousand and two <i>40,002</i>	<b>L</b> Four hundred and twenty thousand <i>420,000</i>

13. Anna and Dan write the number "twelve thousand and nineteen" in digits.

Anna writes: *12, 000, 19* Dan writes: *12, 019*

Who is right? *Dan is right*

What has the other person done wrong? *Anna has written it as two separate numbers.*

14. Write each of these numbers in words.

- a) 37,005 *Thirty seven thousand and five*  
.....
- b) 9,006,030 *Nine million, six thousand and thirty*  
.....
- c) 412,000 *Four hundred and twelve thousand*  
.....

15. Which of these numbers is four hundred million, thirty five thousand and nine?

- a) 400,035,009      b) 400,35,009      c) 4,035,009      d) 400,035,09

16. Which of the following numbers have the digit 8 in the ten thousands place value? Select all that apply.

- a) 809,400       b) 180,013      c) 8,432
- d) 8.0041       e) 5,080,190       f) 89,000

17. Which of the following numbers is equal to 6.2 million?

- a) 62,000,000      b) 6.2000000      c) 6.200000       d) 6,200,000

18. Which of these numbers is 1 billion?

- a) 1,000,000      b) 100,000,000       c) 1,000,000,000



# ordering numbers

## examples

True or false:  
4098 is **more** than 5 thousand ?

*False: 4,098 has only 4 thousands*

Is 1049596 greater than 1 million?

*1049596 =  
1,049,596 which is more than 1 million*

## exercise 1e

- Which of these numbers are **more** than 3 thousand? Choose all that apply.  
a) 504                      b) 3000                      **c) 4098**                      d) 2819
- Which of these numbers are **more** than Ten Thousand? Choose all that apply.  
a) 4,095                      c) 857                      **e) 10495**                      g) 1009  
b) 1209                      d) 1000                      f) 9587                      **h) 92092**
- Put these numbers in order of size, from smallest to largest:  

A 7,402	B 1 Thousand	C 983	D 1200
---------	--------------	-------	--------

**C B D A**
- Which of these is smallest?  
a) 9 Hundred                      **b) Ninety Five**                      c) 923                      d) 9039
- Which of these numbers are bigger than five hundred thousand?  
a) 50,000                      **c) 600,000**                      **e) 840800**  
b) 90,200                      d) 5,500                      f) 40596
- True or False?  
a) 7503 is more than 7 Thousand      **True**  
b) 25985 is more than Twenty Thousand      **True**  
c) 9048 is more than 10 Thousand      **False**  
d) 4899 is more than Forty Eight Thousand      **False**
- Which of these is smallest?  
a) 109444                      **b) 10094**                      c) 10,940                      d) 100,094

8. Which of these numbers are greater than 1 million?

a) 109,000

b) 130499

c) 100000

d) 1409488

9. In each row, select the largest number:

a)	543	5 Hundred	Fifty	59
b)	40 Thousand	3921	39,839	4,999
c)	600,000	75413	6126	60 Thousand
d)	4 million	41092	654,999	8657651
e)	70 Thousand	17,000	160,000	16 Thousand
f)	33 million	6,958,000	43,858,000	999,000

10. Put these numbers in order of size, from smallest to largest:

A	B	C	D	E
5 million	550,000	55102	505102	54133

E, C, D, B, A

11. Which of these numbers is the smallest?

a) 217

b) 72.5

c) 207

d) 702

12. Which of these numbers are greater than 1 million? Circle all that apply.

a) 40009

c) 1093.33

e) 1000000

b) 20349

d) 847000

f) 10000000

13. Which number comes before 100,000? 99,999

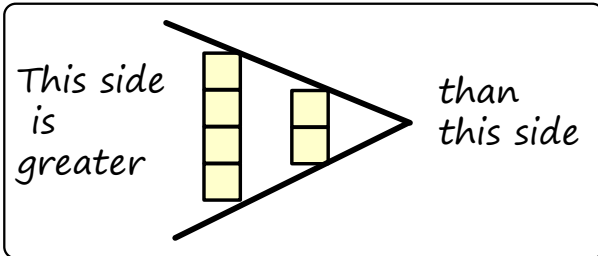
14. Which number comes after 999,999? 1,000,000

15. Which number comes after 999,999,999? 1,000,000,000

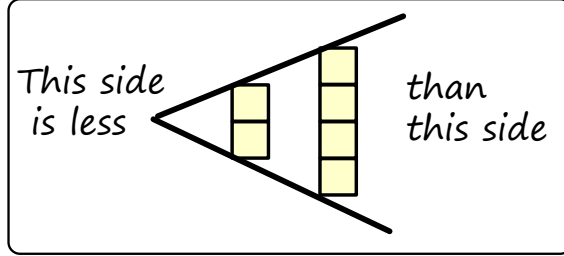
# inequality symbols

## learn by heart

$>$  : greater than



$<$  : less than



## exercise 1f

1. Which of these means 5 is greater than 3?

a)  $5 > 3$

b)  $5 < 3$

c)  $5 = 3$

d)  $5 / 3$

2. Decide whether these statements are true or false:

a)  $3 > 5$  False

f)  $4 < 2$

False

k)  $1,000 > 1 \text{ Thousand}$  False

b)  $6 > 4$  True

g)  $7 < 7$

False

l)  $3,849,000 > 1 \text{ million}$  True

c)  $2 > 2$  False

h)  $1,999 > 2000$  False

m)  $214,380 > 1 \text{ million}$  False

d)  $1 < 0$  False

i)  $20394 < 9039$  False

n)  $1,000,000 > 1 \text{ million}$  False

e)  $3 < 7$  True

j)  $1494 > 2 \text{ Thousand}$  False

o)  $1,939,938 > 1 \text{ billion}$  False

3. Which of the following means A is less than B?

a)  $A > B$

b)  $A = B$

c)  $B < A$

d)  $A < B$

4. Complete these statements using the symbols  $>$ ,  $<$  or  $=$

a)  $6 > 5$

b)  $200 < 300$

c)  $27 = 27.0$

d)  $95 < 100$

5. What is the **biggest** whole number that makes each statement true?

a) 99  $< 100$

b) 499  $< 500$

c) 999  $< 1000$

d) 1499  $< 1500$

# rounding to the nearest 10, 100, 1000

## examples

Round 45 to the nearest 10

$$= 50$$

Round 573 to the nearest 100

$$= 600$$

Round 2,035 to the nearest 1,000

$$= 2000$$

## exercise 1g

1. Round these numbers to the nearest 10:

a) 64 **60**

c) 108 **110**

e) 15 **20**

g) 775 **780**

b) 92 **90**

d) 203 **200**

f) 596 **600**

h) 1025 **1030**

2. Round these numbers to the nearest 100:

a) 556 **600**

c) 76 **100**

e) 3045 **300**

g) 14,250 **14,300**

b) 289 **300**

d) 1450 **1000**

f) 56,980 **57,000**

h) 7,500 **7,500**

3. True or false: 426 rounded to the nearest hundred is 500 **False**

4. True or false: 91 rounded to to the nearest hundred is 100 **True**

5. True or false: 19 rounded to the nearest 100 is 0 **True**

6. Round each number to the nearest 1000:

a) 4892 **5000**

c) 34,506 **35,000**

e) 14,006 **14,000**

g) 104,967

**105,000**

b) 2084 **2000**

d) 9,809 **10,000**

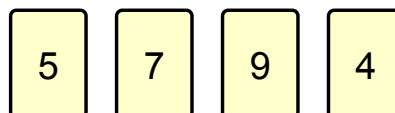
f) 94 **0**

h) 1,034,856

**1,035,000**

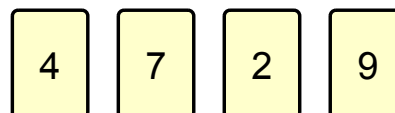
7. Arrange these cards to make a number that rounds to 9480, to the nearest ten:

**9475**



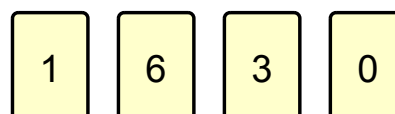
8. Arrange these cards to make a number that rounds to 2700, to the nearest hundred:

**2749 or 2794**



9. Arrange these cards to make a number that rounds to 4000, to the nearest thousand:

**3601 or 3610**



10. Anya thinks of a number. She rounds it to the nearest ten. The answer is 40.  
What is the smallest number Anya could have been thinking of? **35**
11. Sarah thinks of a number. She rounds it to the nearest hundred. The answer is 300.  
What is the smallest number Sarah could have been thinking of? **250**
12. Which of these numbers has been rounded to the nearest hundred?  
a) 30                      **b) 300**                      c) 320                      d) 1450
13. Which of these numbers round to 300, to the nearest 100?  
**a) 289**                      b) 3000                      c) 242                      **d) 349.9**                      **e) 250**

rounds to 60

14. There are **8** numbers in the grid which round to 60, to the nearest 10.  
Can you find them?

A	45	B	58	C	67	D	32	E	64	F	59
G	54	H	51	I	72	J	60.5	K	56	L	68
M	55	N	53.5	O	40	P	60	Q	70	R	65.5
S	39	T	66	U	54.5	V	80	W	61	X	49

rounds to 500

15. There are **9** numbers in the grid which round to 500, to the nearest 100.  
Can you find them?

A	443	B	512	C	750	D	623	E	592	F	507
G	480	H	499	I	450	J	495	K	550	L	572
M	585	N	430	O	445	P	400	Q	520	R	500
S	399	T	1500	U	405	V	49.5	W	449.5	X	549

16. Eli thinks of a number. He rounds it to the nearest ten.  
Marcel thinks of a number. He rounds it to the nearest hundred.  
They both end up with the same answer!  
What numbers could they have been thinking of?
- many answers,  
e.g. Eli = 98  
Marcel = 109**

# reading & writing tenths

## learn by heart

Integer: a whole number

Decimal: a number including a decimal point, which separates the wholes from the parts.

The decimal point: is *to the right of* the units column

Tenth: When one unit is split into ten equal parts, each part is called a tenth.

As a fraction this is written as  $\frac{1}{10}$  and as a decimal it is 0.1

There are ten tenths in 1 unit.

Wholes and parts can be written together as a mixed number, e.g.  $1\frac{3}{10}$  means  $1 + \frac{3}{10}$

tens	units	●	tenths
10	1		0.1
10	1		$\frac{1}{10}$

## exercise 1h

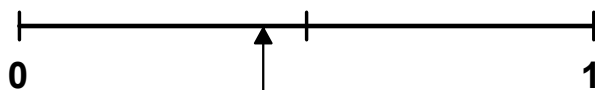
1. Write as a decimal:

- a) 3 tenths    **0.3**    c)  $\frac{5}{10}$     **0.5**    e)  $\frac{10}{10}$     **1**    g)  $3\frac{5}{10}$     **3.5**  
b) 7 tenths    **0.7**    d)  $\frac{9}{10}$     **0.9**    f)  $1\frac{4}{10}$     **1.4**    h)  $15 + \frac{2}{10}$     **15.2**

2. Write as a fraction or mixed number:

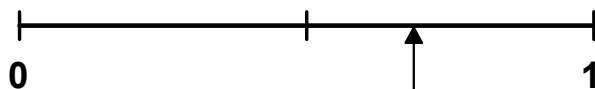
- a) 0.8     $\frac{8}{10}$     c) 0.1     $\frac{1}{10}$     e) 1.8     $1\frac{8}{10}$     g) 12.6     $12\frac{6}{10}$   
b) 0.4     $\frac{4}{10}$     d) 1.1     $1\frac{1}{10}$     f) 3.9     $3\frac{9}{10}$     h) 18.9     $18\frac{9}{10}$

3. Which number does the arrow point to?



- a) 0.2    c) **0.4**  
b) 0.3    d) 0.5

4. Which number does the arrow point to?



- a) 0.2    c) 0.5  
b) 0.3    d) **0.7**

5. Which of these is 8 tenths?

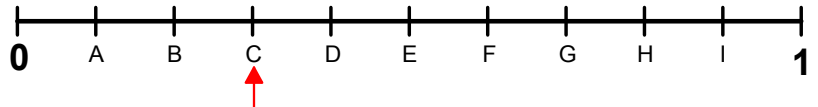
a) 80

b)  $\frac{1}{8}$

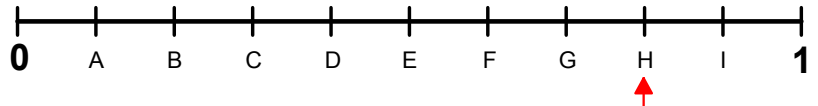
c) 8.1

d) 0.8

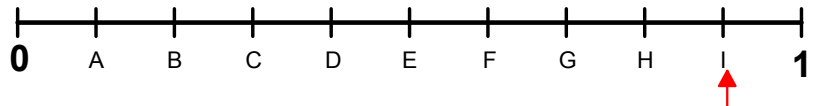
6. Show the position of 0.3 on this number line:



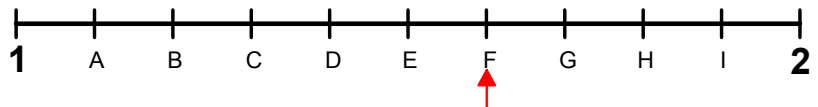
7. Show the position of 0.8 on this number line:



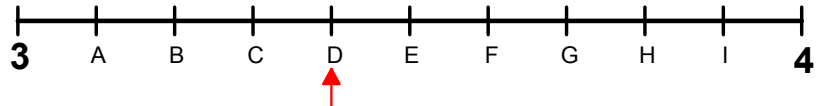
8. Show the position of  $\frac{9}{10}$  on this number line:



9. Show the position of 1.6 on this number line:



10. Show the position of  $3\frac{4}{10}$  on this number line:



11. '7 tenths' is written as a decimal like this 0.7 and as a fraction like this  $\frac{7}{10}$ .

12. Which of these is the same as 'ten tenths'? Choose two answers.

a) 10

b)  $\frac{10}{10}$

c) 1

d)  $\frac{1}{10}$

13. We write 9 tens as 90 and 9 tenths as 0.9 or  $\frac{9}{10}$

14. Write as a decimal:

a)  $9 + \frac{3}{10}$  9.3

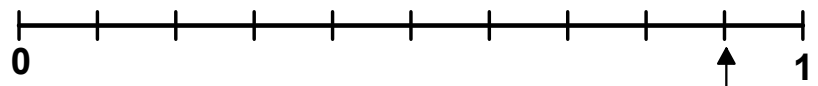
b)  $64\frac{1}{10}$  64.1

c)  $6 + 0.6$  6.6

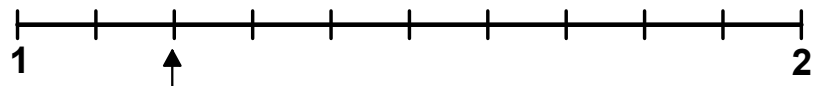
d)  $42 + \frac{9}{10}$  42.9

15. Which decimal number does the arrow point to?

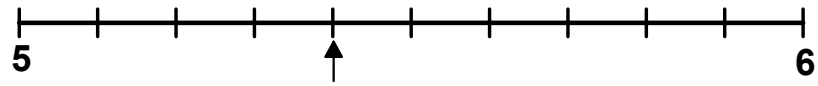
0.9



16. Which decimal number does the arrow point to? 1.2



17. Which decimal number does the arrow point to? 5.4



18. As a decimal, 7 tens + 7 tenths = 70.7 and as a mixed number it is  $70\frac{7}{10}$

# reading & writing decimal numbers 1

## learn by heart

Hundredth: When 1 whole is split into 100 equal parts, each part is called a hundredth and this is written 0.01 as a decimal or  $\frac{1}{100}$  as a fraction.  
The hundredths column is to the right of the tenths.

tens	units	tenths	hundredths	thousandths	ten thousandths
10	1	0.1	0.01	0.001	0.0001
10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$	$\frac{1}{10,000}$

## examples

Write '3 tenths'  
as a decimal  
= 0.3

Write  $\frac{5}{100}$  as a decimal  
= 0.05

In the number 46.803, what is the  
value of the digit 3?  
= 3 thousandths

## exercise 1i

1. Write as a decimal:

a) 6 tenths  
0.6

c) 5 thousandths  
0.005

e)  $\frac{7}{10}$  0.7

g)  $\frac{3}{100}$  0.03

b) 7 hundredths  
0.07

d) 8 tens  
80

f)  $\frac{9}{100}$  0.09

h)  $\frac{1}{1000}$  0.001

2. State the value of the digit 6 in each of these numbers. The first is done for you.

a) 38.1**6**5  
6 hundredths

b) **6**.01  
6 units

c) 1.**6**924  
6 tenths

d) 309.**8**5**6**  
6 thousandths

e) 1.**6**93  
6 tenths

f) 0.00**6**  
6 ten thousandths

3. Which of these numbers have 8 tenths? Circle two answers.

a) 8

b) 80

c) 800

d) 0.8

e) 0.80

f) 0.08

4. Which of these numbers has a 7 in the tenths column?

a) 700

b) 70

c) 7.0

d) 0.7

e) 0.07

5. Write in digits: 9 hundredths = 0.09 and 9 hundreds = 900



6. Write as a fraction:

a) 8 tenths  $\frac{8}{10}$

c) 0.009  $\frac{9}{1000}$

e) 0.2  $\frac{2}{10}$

b) 9 thousandths  $\frac{9}{1000}$

d) 0.06  $\frac{6}{100}$

f) 0.04  $\frac{4}{100}$

7. Fill in the names of the columns. The first one is done for you.

tens	●	units	tenths	hundredths	thousandths
------	---	-------	--------	------------	-------------

8. Which of these are equal to 0.3 ? Circle 2 answers:

a)  $\frac{3}{10}$

b)  $\frac{3}{100}$

c) 3 tenths

d)  $\frac{10}{3}$

9. Write in digits: 8 tens = 80 and 8 tenths = 0.8 or  $\frac{8}{10}$

10. Write as decimals:

a) Zero point three seven **0.37**

b) One hundred point four nine zero **100.490**

c) Sixty seven point three **67.3**

d) Four thousand and eighty two point nine five **4082.95**

11. Which of these numbers has 9 tens and 9 tenths?

a) 9.9

b) 9.90

c) **90.9**

d) 90.09

e) 900.9

### matching activity

Match each card on the left with one on the right:

<b>A</b> 0.6	<b>B</b> 0.5	<b>C</b> 0.003	<b>M</b> $\frac{3}{1000}$	<b>N</b> $\frac{6}{100}$	<b>O</b> 5 tenths
<b>D</b> 3.0	<b>E</b> 60	<b>F</b> 6.6	<b>P</b> 3 units	<b>Q</b> 6 units	<b>R</b> 6 tens
<b>G</b> 0.06	<b>H</b> 5	<b>I</b> 600	<b>S</b> 6 hundreds	<b>T</b> 6 tenths	<b>U</b> $\frac{5}{1000}$
<b>J</b> 0.005	<b>K</b> 6.0	<b>L</b> 50.5	<b>V</b> $6 + \frac{6}{10}$	<b>M</b> 5 tens + $\frac{5}{10}$	<b>X</b> 5 ones

A	B	C	D	E	F	G	H	I	J	K	L
T	O	M	P	R	V	N	X	S	U	Q	M

## reading & writing decimals 2 (mixed numbers)

### learn by heart

Mixed Number: *an integer + a fraction, e.g.  $3\frac{1}{10}$  means 3 wholes +  $\frac{1}{10}$*

### example

Write as a decimal the number with:

a) Two tens, three units and four hundredths **23.04**

b) Five units,  $\frac{3}{10}$  and  $\frac{7}{100}$  **5.37**

c)  $42\frac{1}{100}$  **42.01**

Use a zero to show an empty column.

### exercise 1j

1. Write these as decimals:

a)  $\frac{1}{10}$  **0.1**

c)  $\frac{3}{10}$  **0.3**

e)  $1\frac{4}{10}$  **1.4**

g)  $2\frac{1}{1000}$  **2.001**

b)  $\frac{9}{100}$  **0.09**

d)  $\frac{7}{1000}$  **0.007**

f)  $5\frac{8}{100}$  **5.08**

h)  $\frac{7}{10,000}$  **0.0007**

2. Write these decimals as fractions or mixed numbers:

a) 0.6  $\frac{6}{10}$

c) 1.2  $1\frac{2}{10}$

e) 0.007  $\frac{7}{1000}$

b) 0.09  $\frac{9}{100}$

d) 3.04  $3\frac{4}{100}$

f) 5.9  $5\frac{9}{10}$

3. Which of these is 4 tens + 4 tenths?

a) 4.4

**b) 40.4**

c) 40.04

d) 400.4

4. Which of these is 3.07?

a) 37

b)  $3\frac{7}{10}$

c) 307

**d)  $3\frac{7}{100}$**

5. Write the following as decimals:

a) 4 tens + 2 tenths **40.2**

d) 7 tens + 3 thousandths **70.003**

b) 3 hundreds + 5 tenths **300.5**

e) 9 tens + 5 tenths **90.5**

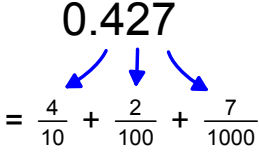
c) 6 tenths + 4 hundredths **0.64**

f) 6 thousands + 3 tenths **6000.3**

6. Write down the decimal number with exactly 4 tens, 3 tenths and 2 thousandths. **40.302**
7. True or False: 60.8 means 6 tens + 8 tenths **True**
8. In each number, write down the value of the digit in bold.
- a) 38.**6**5 **6 tenths or  $\frac{6}{10}$**       e) **1**.06 **1 unit**
- b) 1.**9**3 **3 hundredths**      f) 3.0**0**5 **5 thousandths**
- c) **4**5.9 **forty**      g) 2,**6**49.6 **6 hundreds**
- d) 309.**8**7 **7 hundredths**      h) 23.**6**78 **7 hundredths**
9. Write  $\frac{1}{10} + \frac{2}{100} + \frac{3}{1000}$  as a decimal **0.123**
10. Decide whether each statement is true:
- a)  $\frac{6}{100} = 0.06$  **True**      h) 3 tens + 4 tenths = 40.3 **False**
- b)  $\frac{3}{10} = 0.03$  **False**      i)  $\frac{3}{100} = 0.03$  **True**
- c)  $\frac{3}{10} + \frac{4}{100} = 0.34$  **True**      j)  $\frac{3}{10} + \frac{2}{100} + \frac{4}{1000} = 0.324$  **True**
- d)  $\frac{6}{1000} = 0.0006$  **False**      k)  $\frac{1}{8} = 0.8$  **False**
- e) 7 hundreds = 0.07 **False**      l)  $\frac{8}{10} = 0.8$  **True**
- f)  $1 + \frac{3}{100} = 1.03$  **True**      m)  $\frac{1}{10}$  is more than  $\frac{1}{100}$  **True**
- g)  $2 + \frac{4}{10} = 240$  **False**      n)  $\frac{1}{4} = 0.4$  **False**
11. Complete these sentences:
- a) 7.89 = 7 units + 8 tenths + 9 hundredths
- b) 20.64 = 2 tens + 6 tenths + 4 hundredths
- c) 3.045 = 3 units + 4 hundredths + 5 thousandths

## reading and writing decimal numbers 3

### examples

<p>Decimal numbers are equivalent to fractions with denominators of 10, 100, 1000, ...</p> <p style="text-align: center; font-size: 1.2em;"><b>0.427</b></p>  <p style="text-align: center;"><math>= \frac{4}{10} + \frac{2}{100} + \frac{7}{1000}</math></p>	<p><b>Tenths</b></p> <p><math>\frac{3}{10} = 0.3</math></p> <p><math>3\frac{4}{10} = 3.4</math></p> <p><math>\frac{14}{10} = 1.4</math></p>	<p><b>Hundredths</b></p> <p><math>\frac{3}{100} = 0.03</math></p> <p><math>\frac{24}{100} = 0.24</math></p> <p><math>\frac{206}{100} = 2.06</math></p>	<p><b>Thousandths</b></p> <p><math>\frac{3}{1000} = 0.003</math></p> <p><math>\frac{37}{1000} = 0.037</math></p> <p><math>\frac{409}{1000} = 0.409</math></p>
--	---	--	---

We can read 0.23 as '23 hundredths' because it ends in the hundredths column. This helps us remember it is the same as  $\frac{23}{100}$

### exercise 1k

1. Write as a decimal:

a)  $\frac{12}{100}$  **0.12**

d)  $\frac{28}{1000}$  **0.028**

g)  $\frac{5}{1000}$  **0.005**

b)  $\frac{346}{1000}$  **0.346**

e)  $\frac{208}{1000}$  **0.208**

h)  $1\frac{34}{100}$  **1.34**

c)  $\frac{470}{1000}$  **0.470 = 0.47**

f)  $\frac{81}{1000}$  **0.081**

i)  $2\frac{109}{1000}$  **2.109**

2. Write as a fraction:

a) 0.49  $\frac{49}{100}$

c) 0.301  $\frac{301}{1000}$

e) 0.009  $\frac{9}{1000}$

b) 0.07  $\frac{7}{100}$

d) 0.047  $\frac{47}{1000}$

f) 0.148  $\frac{148}{1000}$

3.  $\frac{23}{1000}$  is the same as:

a) 0.23

b) 0.203

**c) 0.023**

d) 2.3

4. True or False?

a)  $0.64 = \frac{64}{100}$  **True**

c)  $1.08 = 1\frac{8}{100}$  **True**

e)  $\frac{1}{10,000} = 0.001$  **False**

b)  $\frac{91}{1000} = 0.91$  **False**

d)  $0.7 = \frac{7}{10}$  **True**

f)  $\frac{4}{100} = 0.4$  **False**

5. Write as a decimal:

a)  $\frac{27}{100}$  0.27

c)  $\frac{19}{100}$  0.19

e)  $\frac{3}{10} + \frac{1}{1000}$  0.301

b)  $\frac{172}{1000}$  0.172

d)  $2\frac{5}{10}$  2.5

f)  $4 + \frac{26}{100}$  4.26

6. The numbers 54.829 and  $\frac{28}{1000}$  have the same digit in which column?

a) units

b) tenths

**c) hundredths**

d) thousandths

7. Write as a fraction or mixed number:

a) 0.7  $\frac{7}{10}$

b) 0.92  $\frac{91}{100}$

c) 3.04  $3\frac{4}{100}$

d) 0.609  $\frac{609}{1000}$

8. Write down the decimal number that has exactly 7 hundreds, 3 tenths and 2 hundredths.  
700.32

9. Write down the value of the digit '1' in each number:

a) 0.31  $\frac{1}{100}$

b) 2.1  $\frac{1}{10}$

c) 5.441  $\frac{1}{1000}$

d) 0.6001  $\frac{1}{10,000}$

10. 6 hundreds and 6 tenths make:

**a) 600.6**

b) 0.66

c) 60.6

d) 600.06

11. Ten tenths make:

a) 10

**b) 1**

c) 0.1

d) 0.01

12. Write as a decimal

a)  $\frac{4}{10} + \frac{3}{100}$  0.43

b)  $6 + \frac{1}{1000}$  6.001

c)  $300 + \frac{3}{10} + \frac{3}{1000}$  300.303

13. Write 0.0409 as a fraction.  $\frac{409}{10,000}$

14. The numbers 4.128 and  $4\frac{1}{1000}$  have the same digit in which column?

**a) units**

b) tenths

c) hundredths

d) thousandths

15. 8 tens and 8 hundredths make:

**a) 80.08**

b) 80.8

c) 8.8

d) 8.08

e) 0.88

16. Fill in the blanks with fractions or integers:

a)  $0.402 = \frac{4}{10} + \frac{2}{1000}$

c)  $20.64 = 20 + \frac{6}{10} + \frac{4}{100}$

b)  $3.99 = 3 + \frac{9}{10} + \frac{9}{100}$

d)  $305.106 = 300 + 5 + \frac{1}{10} + \frac{6}{1000}$

16. Write as a decimal the number with:

a) 3 tens + 4 tenths **30.04**

b) Twenty five hundredths **0.25**

17. Write as a fraction or mixed number:

a) 0.1  $\frac{1}{10}$

b) 0.02  $\frac{2}{100}$

c) 1.005  $1\frac{5}{1000}$

d) 1.3  $1\frac{3}{10}$

18. The numbers 1.49263 and  $\frac{296}{1000}$  have the same digit in which column? **hundredths**

19. True or False? All decimal numbers are less than 1 whole. **False**

20. True or False? The largest decimal number is 0.99. **False**

21. How many different decimal numbers are there between 0 and 1? **Infinite**

## Writing Decimals Match

Match these cards to their decimal equivalents at the bottom.

1 2 hundreds	2 2 hundredths	3 2 tens + 6 units
4 2 thousands + 2 units	5 6 tens + 6 tenths	6 6 tens
7 6 thousandths	8 6 thousands	9 10 tenths
10 2 tenths	11 6 tenths + 2 hundredths	12 2 tenths + 6 hundredths
13 6 tenths	14 2 tenths + 6 thousandths	15 2 tens + 6 tenths
16 6 tenths + 6 hundredths	17 6 hundreds	18 2 tens + 2 tenths

1	<b>200</b>
2	<b>0.02</b>
3	<b>26</b>
4	<b>2002</b>
5	<b>60.6</b>
6	<b>60</b>
7	<b>0.006</b>
8	<b>6000</b>
9	<b>1</b>
10	<b>0.2</b>
11	<b>0.62</b>
12	<b>0.26</b>
13	<b>0.6</b>
14	<b>0.206</b>
15	<b>20.6</b>
16	<b>0.66</b>
17	<b>600</b>
18	<b>20.2</b>

20.2	200	20.6	0.26	1	60	26	0.006	0.02
2002	6000	0.2	0.62	0.66	0.206	600	0.6	60.6

# comparing decimals

## learn by heart

Decimal Places: the number of digits after the decimal point, e.g. 0.405 has 3 decimal places.

Adding zeros to the end of a decimal does not effect its size, so  $0.1 = 0.10 = 0.1000000$

## examples

Which is larger 0.4 or 0.34?

$0.4 = 0.40$ ,  
so 0.4 is larger.

By adding a zero to 0.4, both numbers have two decimal places and we can easily see that '40 hundredths' is bigger than '34 hundredths'

## exercise 1

1. 0.6 is the same as:

- a) 0.600                      b) 6.0                      c) 0.06                      d) 0.66

2. In each pair, select the **bigger** number. Or write = if they are equal.

- a) 0.6 or 0.07                      e) 0.9 or 0.9000 =                      i) 0.12 or 0.4  
b) 0.1 or 0.02                      f) 0.04 or 0.4                      j) 0.004 or 0.05  
c) 0.3 or 0.30 =                      g) 0.6 or 0.42                      k) 0.501 or 0.51  
d) 0.2 or 0.03                      h) 0.23 or 0.3                      l) 0.34 or 0.335

3. Decide whether these statements are true or false:

- a)  $0.4 > 0.3$  True                      d)  $0.23 < 0.230$  False                      g)  $0.43 = 0.430$  True  
b)  $0.2 < 0.1$  False                      e)  $0.61 > 0.62$  False                      h)  $2.8 > 2.79$  True  
c)  $0.01 < 0.2$  True                      f)  $1 = 1.00$  True                      i)  $3.5 = 3.500$  True

4. Which of these numbers is the **largest**?

- a) 0.92                      b) 0.149                      c) 0.840                      d) 0.09999

5. Which of these numbers is the **smallest**?

- a) 0.02                      b) 0.4                      c) 0.009                      d) 0.013

6. Which is bigger, 1.6 or 2? Explain your answer. **2, it has 2 whole units,**

7. In each row, decide which is the smallest number:

- a)
- b)
- c)
- d)
- e)

8. Which is bigger 0.8cm or 0.75cm? **0.8cm**

9. Which is more, 0.205kg or 0.3kg? **0.3kg**

10. Which of these numbers get bigger when you add a zero on the end?  
Choose all that apply.

- a)       b)       c) 4.65      d) 8.9      e) 3.0

11. Which of these numbers stays the same size when you remove the final 0?  
Choose all that apply.

- a) 450      b)       c) 2900      d) 4,750

## Guess My Number

Use the clues to work out which number in the grid is being described.

My number is less than 0.7

My number is more than 0.2

My number has an 8 in the thousandths column

My number is less than 0.42

My number contains the digit 2

The digit in the hundredths column is odd

<del>0.144</del>	<del>0.8</del>	<del>0.248</del>
<del>0.288</del>	<del>0.25</del>	<del>0.825</del>
<del>0.418</del>	<del>0.141</del>	<del>0.118</del>
<del>0.88</del>	<del>0.44</del>	<del>0.114</del>
<del>0.458</del>	<input checked="" type="text" value="0.258"/>	<del>0.552</del>



# comparing decimals & fractions (using place value)



## examples

Which is bigger,  $\frac{1}{10}$  or 0.7?

*0.7 because it equals  $\frac{7}{10}$*

Which is bigger, 0.42 or  $\frac{5}{10}$ ?

*$\frac{5}{10}$  because it equals 0.5*

## exercise 1m

1. Decide which number is bigger in each pair, or say if they are equal.

a) 0.3 or  $\frac{4}{10}$

g) 1.5 or  $1\frac{3}{10}$

m) 2.35 or  $2\frac{4}{10}$

b) 0.9 or  $\frac{8}{10}$

h) 1.06 or  $1\frac{6}{10}$

n) 1.6 or  $1\frac{6}{10}$  **Equal**

c) 0.6 or  $\frac{8}{100}$

i) 0.23 or  $\frac{3}{10}$

o) 0.008 or  $\frac{9}{1000}$

e)  $\frac{6}{10}$  or 0.60 **Equal**

k) 0.7 or  $\frac{7}{100}$

q)  $\frac{6}{100}$  or 0.51

f) 0.04 or  $\frac{4}{10}$

l) 0.66 or  $\frac{6}{10}$

r)  $\frac{23}{100}$  or 0.1

2. Which of these numbers are bigger than 0.6? Circle all that apply.

a) 0.304

b)  $\frac{6}{10}$

c) 1.0

d)  $\frac{3}{10}$

e)  $1\frac{4}{10}$

3. Which of the following are equal to 3 tenths?

a) 0.30

b) 0.03

c)  $\frac{3}{100}$

d) 30

e)  $\frac{3}{10}$

4. Put these in order of size, from smallest to largest: 0.07, 7.07,  $\frac{7}{10}$ , 7.1

**0.07,  $\frac{7}{10}$ , 7.07, 7.1**

5. Decide whether these statements are true or false:

a)  $0.3 > \frac{1}{10}$  **True**

e)  $\frac{3}{100} = 0.3$  **False**

i)  $8\frac{3}{10} = 83.1$  **False**

b)  $0.01 < 0.010$  **False**

f)  $1\frac{1}{10} = 1.10$  **True**

j)  $0.3 = \frac{3}{10}$  **True**

c)  $\frac{1}{10} < \frac{1}{100}$  **False**

g)  $0.4 = 0.40$  **True**

k)  $5\frac{4}{1000} = 0.504$  **False**

d)  $\frac{4}{10} = 0.4$  **True**

h)  $\frac{61}{100} = 0.061$  **False**

l)  $\frac{1}{1000} = 0.001$  **True**

6. Complete these statements using one of these symbols:  $<$   $>$   $=$

a)  $0.4 > \frac{7}{100}$

d)  $0.019 < \frac{9}{100}$

b)  $0.06 = \frac{6}{100}$

e)  $3.28 > 3\frac{8}{100}$

c)  $0.72 > \frac{7}{10}$

f)  $1.007 < 1\frac{7}{10}$

7. Which of these numbers are **smaller** than 0.05? Choose all that apply.

a) one tenth                      **b) one hundredth**                      **c) one thousandth**

d) six hundredths                      e) four tenths                      **f) nine thousandths**

8. Which of these are the same as 0.4? Circle three answers.

**a) 0.40**                      b) 0.04                      **c)  $\frac{4}{10}$**                       **d) 0.400**                      e)  $\frac{4}{100}$

9. First change each set of numbers to decimals.

Then write each set in order, from smallest to largest:

i) 

A	$\frac{1}{10}$
---	----------------

B	0.8
---	-----

C	$\frac{2}{100}$
---	-----------------

D	0.6
---	-----

 $\frac{2}{100}$        $\frac{1}{10}$       0.6      0.8      **C A D B**

ii) 

A	0.6
---	-----

B	0.66
---	------

C	$\frac{6}{100}$
---	-----------------

D	0.61
---	------

 $\frac{6}{100}$       0.6      0.61      0.66      **C A D B**

iii) 

A	$\frac{7}{1000}$
---	------------------

B	0.05
---	------

C	0.25
---	------

D	$\frac{4}{10}$
---	----------------

 $\frac{7}{1000}$       0.05      0.25       $\frac{4}{10}$       **A B C D**

iv) 

A	2.45
---	------

B	2.427
---	-------

C	2.4
---	-----

D	2.47
---	------

      2.4      2.427      2.45      2.47      **C B A D**

v) 

A	$\frac{8}{100}$
---	-----------------

B	$\frac{8}{1000}$
---	------------------

C	$\frac{8}{10}$
---	----------------

D	0.85
---	------

 $\frac{8}{1000}$        $\frac{8}{100}$        $\frac{8}{10}$       0.85      **B A C D**

vi) 

A	7
---	---

B	7.1
---	-----

C	$7\frac{3}{100}$
---	------------------

D	$\frac{7}{100}$
---	-----------------

 $\frac{7}{100}$       7       $7\frac{3}{100}$       7.1      **D A C B**

10. In each pair, select the larger number, or write = if they are the same.

a) **0.7** or  $\frac{6}{10}$

d) 0.19 or  **$\frac{8}{10}$**

b) **0.5** or  $\frac{5}{100}$

e) **1.07** or  $1\frac{6}{100}$

c) 1.6 or  $1\frac{6}{10}$  =

f) **0.26** or  $\frac{3}{100}$

## half way between

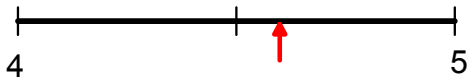


### example

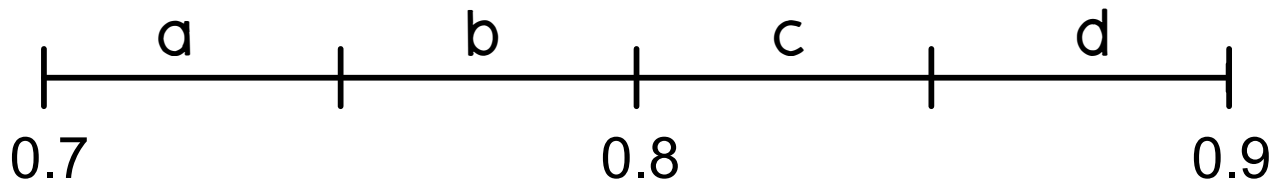
Write down the number half way between 0.3 and 0.31

$0.3 = 0.300$  and  $0.31 = 0.310$   
so half way between is  $0.305$

### exercise In

- Which of these numbers are between 3.4 and 3.7 ? Choose all that apply.  
a) 3.05       b) 3.65       c) 3.518      d) 3.72
- Which of these numbers are **between** 0.3 and 0.4? Choose 2 answers.  
a)  0.32      b) 3.3      c) 0.034      d) 0.40      e)  0.356
- Which of these numbers are **between** 1.5 and 1.6? Choose all that apply.  
a) 1.45      b)  1.59      c) 1.62      d) 1.7      e)  1.501
- Write down a number that is between 4.2 and 4.3    e.g. 4.25
- Write down the number that is half way between 0.4 and 0.5    0.45
- Write down the number that is half way between:  
a) 0.7 and 0.8    0.75      d) 1.7 and 1.8    1.75      g) 2 and 3    2.5  
b) 0.3 and 0.4    0.35      e) 5 and 6    5.5      h) 10 and 11    10.5  
c) 0.6 and 0.7    0.65      f) 1.7 and 1.8    1.75      i) 0.9 and 1    0.95
- On the number line, estimate the position of 4.6 
- Write down the number that is half way between 0.8 and  $\frac{9}{10}$     e.g. 0.85
- Which of these numbers are greater than  $\frac{8}{10}$  and less than  $\frac{9}{10}$ ? Choose 2 answers.  
a) 0.085       b) 0.82      c) 0.10      d) 0.9       e) 0.802
- Which of these numbers is greater than  $\frac{4}{10}$  and less than 0.41?  
 a) 0.408      b) 0.45      c) 0.40      d) 0.7      e) 0.39
- How many decimals are there between 1 and 2?    infinite

# Sort It Out!



Decide which section of the number line above each of these numbers would go in

0.801	0.72	0.852	0.799	0.7501	0.78	0.74
0.845	0.76	0.709	0.840	0.89	0.7499	0.887
						0.820

Four circles labeled a, b, c, and d, each containing a set of numbers sorted into their respective sections from the number line above.

- a:** 0.72, 0.74, 0.709, 0.7499
- b:** 0.799, 0.7501, 0.76
- c:** 0.801, 0.820, 0.845, 0.840
- d:** 0.89, 0.852, 0.887

## Guess My Number

Each statement describes a number in the grid. Can you work out which number?

301	1.03	0.01
0.3	1.3	3.03
0.301	0.103	0.13

**A.** This is the smallest number 0.01

**B.** This number equals  $\frac{3}{10}$  0.3

**C.** This number is greater than  $\frac{3}{100}$  but less than 1 0.301

**F.** This is the largest number 301

**D.** This number is greater than  $\frac{1}{10}$  but less than 0.12

**G.** This number is greater than 1 but less than  $1\frac{3}{10}$  1.03

**H.** This number equals  $\frac{13}{10}$  1.3

0.103

**E.** This number equals  $\frac{1}{10} + \frac{3}{100}$  0.13

**I.** This number equals  $3 + \frac{3}{100}$  3.03

# rounding (nearest whole)

## learn by heart

Sometimes we do not want to write all the digits of a decimal down and we can shorten it by rounding.

## example

Round 6.83 to the nearest whole (integer)  
= 7

An integer is a whole number. 6.83 has 6 wholes + some extra, so it is between 6 and 7 wholes. Half way between 6 and 7 would be 6.5, and 6.83 is more than this, so it is closer to 7.

## exercise 10

1. Which of these numbers are **integers**? Choose all that apply.

a) 45.8

**b) 36**

c) 2.83

d) 1.5

**e) 2**

2. Round each number to the nearest whole:

a) 3.6 **4**

c) 2.3 **2**

e) 6.5 **7**

b) 4.7 **5**

d) 14.9 **15**

f) 201.3 **201**

3. Round each number to the nearest integer:

a) 2.68 **3**

c) 3.15 **3**

e) 14.782 **15**

b) 4.79 **5**

d) 0.86 **1**

f) 156.345 **156**

4. Complete the table:

Number	Nearest 10	Nearest 100	Nearest 1000	Nearest Whole Number
426.24	<b>430</b>	<b>400</b>	<b>0</b>	<b>426</b>
690.104	<b>690</b>	<b>700</b>	<b>1000</b>	<b>690</b>

5. Find all the numbers that round to 17, to the nearest integer:

A 17.5	<b>B 16.5</b>	C 16.2	D 15.1	E 17.5	<b>F 17.23</b>
<b>G 17.1</b>	H 16.9	I 17.8	J 16.4	K 16.45	L 17.51

6. Arrange the cards to make a number that rounds to 21, to the nearest integer:

0

.

4

2

**20.4**

## rounding to 1 decimal place (d.p.)

### learn by heart

A number with 1 decimal place has 1 digit after the decimal point, e.g. 3.4

When rounding to 1 d.p, we look at the digit in the 2nd decimal place. If it is 5 or more, we round UP, meaning we increase the value of the digit in the 1st decimal place by 1.

### examples

Round:

- |                              |                |     |
|------------------------------|----------------|-----|
| a) 4.327 to 1 decimal place  | $4.3 \mid 27$  | 4.3 |
| b) 2.759 to 1 decimal place  | $2.7 \mid 59$  | 2.8 |
| c) 3.9997 to 1 decimal place | $3.9 \mid 997$ | 4.0 |
| d) 1.996 to the nearest 0.1  | $1.9 \mid 96$  | 2.0 |

→ This means 1 decimal place

### exercise 1p

1. Which of these numbers have 1 decimal place? Choose all that apply.

- a) 43      b) 4.5      c) 2.75      d) 62.0      e) 200.30

2. Round each number to 1 decimal place:

- |         |     |          |      |           |      |             |       |
|---------|-----|----------|------|-----------|------|-------------|-------|
| a) 3.62 | 3.6 | d) 2.45  | 2.5  | g) 4.319  | 4.3  | j) 105.1098 | 105.1 |
| b) 1.84 | 1.8 | e) 13.19 | 13.2 | h) 26.453 | 26.5 | k) 459.821  | 459.8 |
| c) 2.01 | 2.0 | f) 4.55  | 4.6  | i) 19.65  | 19.7 | l) 8.98     | 9.0   |

3. Find all the numbers that round to 3.5 to 1 decimal place:

A	3.48	B	3.41	C	3.45	D	3.34	E	3.41
F	3.51	G	3.62	H	3.55	I	3.56	J	3.509
K	3.63	L	3.81	M	3.67	N	3.39	O	3.409

4. Round 4.87 to the nearest 0.1      4.9

# rounding (decimal places)

## example

Round 0.46889 to  
2 decimal places  
= 0.47

For 2 decimal places, the answer  
can either stay as 0.46, or  
increase to 0.47.  
What is in the middle of these? 0.465  
Is the number bigger or smaller than this? If it is  
bigger, round up to 0.47

## exercise 1q

1. Which of these has 2 decimal places?

- a) 4.09                      b) 5.203                      c) 6.2                      d) 2.0

2. Round each number to 2 decimal places:

- a) 4.085    4.09                      b) 23.1279    23.13                      c) 604.30567    604.31

3. Round each number to 3 decimal places:

- a) 4.0858    4.086                      b) 23.127    23.127                      c) 604.30567    604.306

4. Complete the table by rounding each number to 1, 2 and 3 decimal places.

	Number	to 1 d.p.	to 2 d.p.	to 3 d.p.
a)	3.7281	3.7	3.73	3.728
b)	52.5917	52.6	52.59	52.592
c)	0.1853	0.2	0.19	0.185
d)	9.6458	9.6	9.65	9.646
e)	4.0028	4.0	4.00	4.003

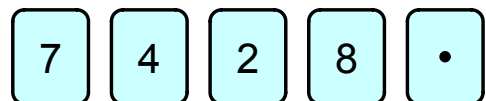
5. Which of these numbers is 24.976 correctly rounded to one decimal place?

- a) 24.9                      b) 24.10                      c) 25                      d) 24.98                      e) 25.0

6. Which of these numbers are closer to 3 than 4?

- a) 3.2                      b) 3.5                      c) 3.8                      d) 3.09

7. Show how these cards can be arranged  
to make a number that rounds to 27.5 to  
one decimal place.    27.48



# Rounding Decimals

## Code Breaker

Round each number as shown.

Find your answer in the code box and write the letter in the yellow box.

The letters should spell a secret message!

a)  $0.34$  to 1 d.p. = 0.3 = **K**

b)  $0.483$  to 1 d.p. = 0.5 = **E**

c)  $0.51$  to 1 d.p. = 0.5 = **E**

d)  $1.05$  to 1 d.p. = 1.1 = **P**

e)  $0.94$  to 1 d.p. = 0.9 = **S**

f)  $1.22$  to 1 d.p. = 1.2 = **M**

g)  $0.784$  to 1 d.p. = 0.8 = **I**

h)  $0.784$  to 2 d.p. = 0.78 = **L**

i)  $0.809$  to 1 d.p. = 0.8 = **I**

j)  $0.789$  to 2 d.p. = 0.79 = **N**

k)  $0.749$  to 1 d.p. = 0.7 = **G**

l)  $1.234$  to 2 d.p. = 1.23 = **A**

m)  $0.781$  to 2 d.p. = 0.78 = **L**

code box

0.3 = K	0.69 = Q	0.8 = I	1.2 = M
0.4 = X	0.7 = G	0.81 = R	1.21 = F
0.48 = ?	0.71 = V	0.9 = S	1.22 = U
0.5 = E	0.74 = C	0.91 = D	1.23 = A
0.51 = H	0.75 = B	1 = J	1.24 = T
0.6 = O	0.78 = L	1.01 = Z	1.3 = Y
0.65 = U	0.79 = N	1.1 = P	1.31 = K

n)  $0.779$  to 2 d.p. = 0.78 = **L**

o)  $0.911$  to 2 d.p. = 0.91 = **D**

p)  $1.225$  to 2 d.p. = 1.23 = **A**

q)  $1.27$  to 1 d.p. = 1.3 = **Y**

r)  $0.777$  to 2 d.p. = 0.78 = **L**

s)  $0.58$  to 1 d.p. = 0.6 = **O**

t)  $0.792$  to 2 d.p. = 0.79 = **N**

u)  $0.699$  to 1 d.p. = 0.7 = **G**



# chapter review

## exercise 1r

1. Match the numbers on the left with the ones on the right:

A. Five million and eight	B. Fifty eight	K. 58	L. 8,050
C. Five hundred and eight thousand	D. Eight hundred and fifty thousand	M. 5,000,085	N. 8,000,505
E. Fifty thousand and eighty	F. Eight hundred and five	O. 850,000	P. 5,000,008
G. Eight million, five hundred and five	H. Eight thousand and fifty	Q. 50,080	R. 508,000
I. Eighty five	J. Five million and eighty five	S. 85	T. 805

Record your answers here:

A	B	C	D	E	F	G	H	I	J
P	K	R	O	Q	T	N	L	S	M

2. Fill in the blanks:

- 4095 is made of 4 thousands, 0 hundreds, 9 tens and 5 units
- 21908 is made of 21 thousands, 9 hundreds, 0 tens and 8 units
- 10,602 is made of 10 thousands, 6 hundreds, 0 tens and 2 units
- 90002 is made of 90 thousands, 0 hundreds, 0 tens and 2 units
- 10,094,060 is made of 10 millions, 94 thousands, 0 hundreds, 6 tens and 0 units
- 9094500 is made of 9 millions, 94 thousands, 5 hundreds, 0 tens and 0 units
- 906405023 is made of 906 millions, 405 thousands, 0 hundreds, 2 tens and 3 units

3. Write these as fractions or mixed numbers:

- a) 4 tenths  $\frac{4}{10}$     b) 0.005  $\frac{5}{1000}$     c) 0.9  $\frac{9}{10}$     d) 0.06  $\frac{6}{100}$   
e) 1.4  $1\frac{4}{10}$     f) 0.4  $\frac{4}{10}$     g) 0.3  $\frac{3}{10}$     h) 0.002  $\frac{2}{1000}$

4. Write these as decimals

- a)  $\frac{3}{10}$  0.3    b)  $1\frac{3}{10}$  1.3    c)  $1\frac{6}{100}$  1.06    d)  $\frac{9}{1000}$  0.009  
e)  $\frac{1}{10}$  0.1    f)  $\frac{2}{100}$  0.02    g)  $\frac{9}{100}$  0.09    h)  $61\frac{9}{10}$  61.9

5. Put these numbers in order of size from smallest to largest:

A  $\frac{8}{10}$     B 4 hundredths    C 4 tens    D 0.4    E 5 tenths    B D E A C

6. '8 tenths' as a decimal is 0.8 and as a fraction it is  $\frac{8}{10}$

7. Which is bigger, 0.304 or 0.4?

8. Write in digits: 7 tenths = 0.7 and 7 tens = 70

9. Complete the blanks with >, < or =

- a) 0.7 =  $\frac{7}{10}$     b) 0.24 > 0.204    c) 1.4 =  $1\frac{4}{10}$

10. True or false?

- a)  $6 + \frac{3}{10} = 6.3$  True    c)  $20 + \frac{2}{100} = 20.2$  False  
b)  $100 + \frac{1}{100} = 200$  False    d)  $\frac{1}{9} = 0.9$  False

11. Round 4.83 to the nearest whole number 5

12. Round 14.806 to 1 decimal place. 14.8

13. Write as a decimal:

- a)  $\frac{29}{100}$  0.29    b)  $\frac{3}{100}$  0.03    c)  $\frac{42}{1000}$  0.042    d)  $2\frac{4}{100}$  2.04  
e)  $\frac{9}{10}$  0.9    f)  $2\frac{3}{100}$  2.03    g)  $\frac{15}{1000}$  0.015    h)  $12\frac{9}{100}$  12.09  
i)  $14\frac{1}{100}$  14.01    j)  $\frac{604}{1000}$  0.604    k)  $8\frac{5}{1000}$  8.005    l)  $\frac{3}{10} + \frac{4}{100} + \frac{5}{1000}$

12. In each of these numbers, write down the value of the digit in bold.

*Hint*  
Try putting a comma after the thousands to help read them

a) **4**05 Four hundred

f) 67**4**89 Seven Thousand

b) 10**2**34 Two hundred

g) **3**02914 Three Hundred Thousand

c) **39**500 Nine thousand

h) 8728**9**3 Ninety

d) 103**9**4 Ninety

i) 91**2**034 Two Thousand

13. Which of these numbers is one hundred thousand and eighty?

a) 1,080

b) 100,000,80

c) 100,800

**d) 100,080**

14. Write the number two hundred and seven thousand and ninety three in digits.

**207,093**

15. Which number is 1 less than 100,000? **99,999**

16. Which number is 1 less than 1 million? **999,999**

### matching activity

17. Match the numbers to their descriptions. Record your answers in a table.

A. 4,039

B. 15,349

C. 6,245

D. 21,043

E. 54,061

F. 90,201

G. 4,372

H. 96,411

I. 87,124

J. 97,932

1 The digit 5 means 5 units

2 The digit 7 means 70

3 The digit 1 stands for Ten Thousand

4 The digit 5 stands for 50,000

5 The digit 6 means 6 Thousand

6 The digit 8 stands for 80 Thousand

7 This is the largest number

8 This is the smallest number

9 The digit 4 stands for Forty

10 There is a 0 in the thousands column

1	2	3	4	5	6	7	8	9	10
C	G	E	B	H	I	J	A	D	F

# Place Value Puzzles

In each of these puzzles, work out which number from the grid is being described:

## Puzzle 1

- My number is not an integer.
- My number has a 1 in the units column
- My number is greater than thirty
- My number is not 31.3
- My number has 1 in the hundredths column

1.01	301	31.1
3.1	3.101	31.3
30.1	31.01	1.03

## Puzzle 2

- My number is less than eighteen thousand
- My number is not 180
- My number is  $> 18$
- My number has 8 in both the tens and tenths columns

180	18.01	1.81
0.18	1800	188
180.8	18180	18.8

## Puzzle 3

- My number is  $\leq 0.2$
- My number is not 0.15
- My number is greater than one tenth
- My number has no hundredths

0.24	0.2	0.12
0.02	0.01	0.5
0.15	2.02	0.1

## Puzzle 4

- My number is  $< 44,000$
- My number is more than five thousand four hundred and fifty
- My number is not 5454
- My number has 5 hundreds
- My number is greater than fifteen thousand

14,500	15,501	45000
5401	5444	5454
14,534	4544	10,500

## Puzzle 5

What is the largest number that can be made by rearranging these cards?

1	2	4	.	8
---	---	---	---	---

842.1

## Puzzle 6

What is the **smallest** number that can be made by rearranging these cards?

5	3	2	.	6
---	---	---	---	---

2.356

## Puzzle 7

Put these numbers in order of size, from smallest to largest

0.04, 0.4, 4.4, 1.4, 0.104  
 0.04, 0.104, 0.4, 1.4, 4.4

## Puzzle 8

Complete these statements using the symbols

$=, >, <$

0.40	=	0.400
0.35	>	0.300
0.2	<	0.25
1.5	>	1.05
1.8	=	1.80
0.01	<	0.1
0.99	<	0.999