



THIRD SPACE
LEARNING

Key Stage 2 SATs

Mathematics Practice Test and Mark Scheme

Paper 3: Reasoning

Pack 2: 2017 (new curriculum)



First name	
Last name	
Class	
Score	/ 35

Instructions

You **may not** use a calculator to answer any questions in this test.

Questions and answers

- Follow the instructions for each question.
- Work as quickly and as carefully as you can.
- If you need to do working out, you can use the space around the question.
- Do not write over any barcodes.
- **Some questions have a method box like this:**

- For these questions, you may get a mark for showing your method.
- If you cannot do a question, **go on to the next one**.
- You can come back to it later, if you have time.
- If you finish before the end, **go back and check your work**.

Marks

- The number under each line at the side of the page tells you the maximum number of marks for each question.

1 What needs to be added to 783 to make 803?

--	--

1 mark

How many **tens** need to be subtracted from 4,270 to make 4,100?

--	--

1 mark

2 Circle the Roman numeral for 2009.

MMVIII MMXI MMIX IXMM

1 mark

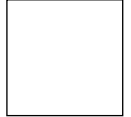
Give your answer to this addition calculation in Roman numerals:

CLXXV + XLIV =

1 mark

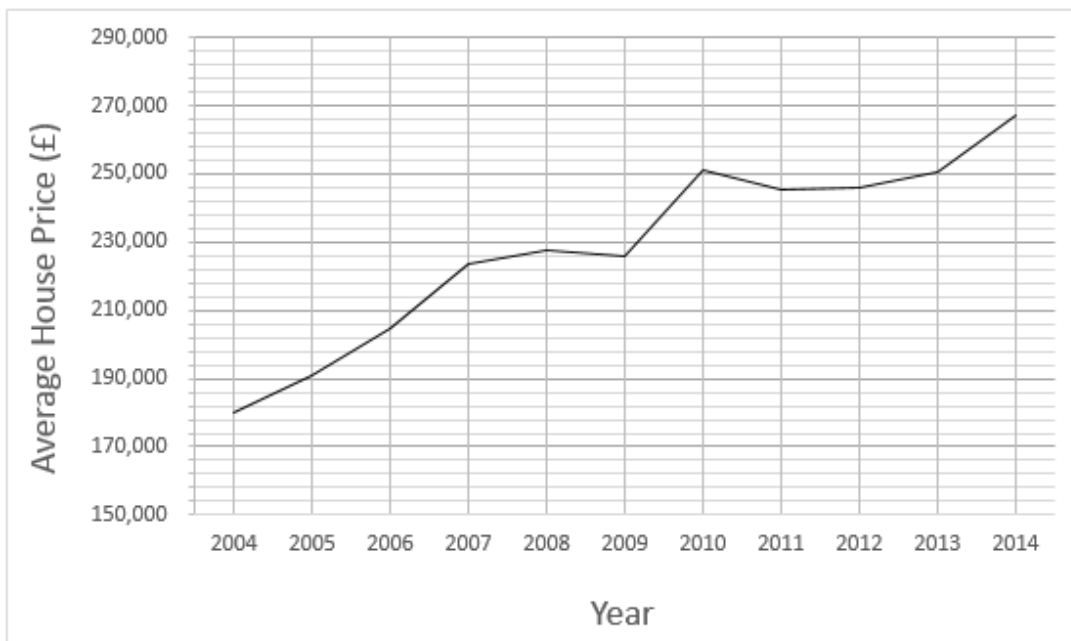
3 Find the two **square numbers** that add together to make 100.

_____ and _____



1 mark

4 This line graph shows average house prices in the UK between 2004 and 2014:



In which **year** was the average UK house price approximately £20,000 lower than the average house price in 2009?

--	--

1 mark

By how much did property prices **increase** between 2009 and 2014?

--	--

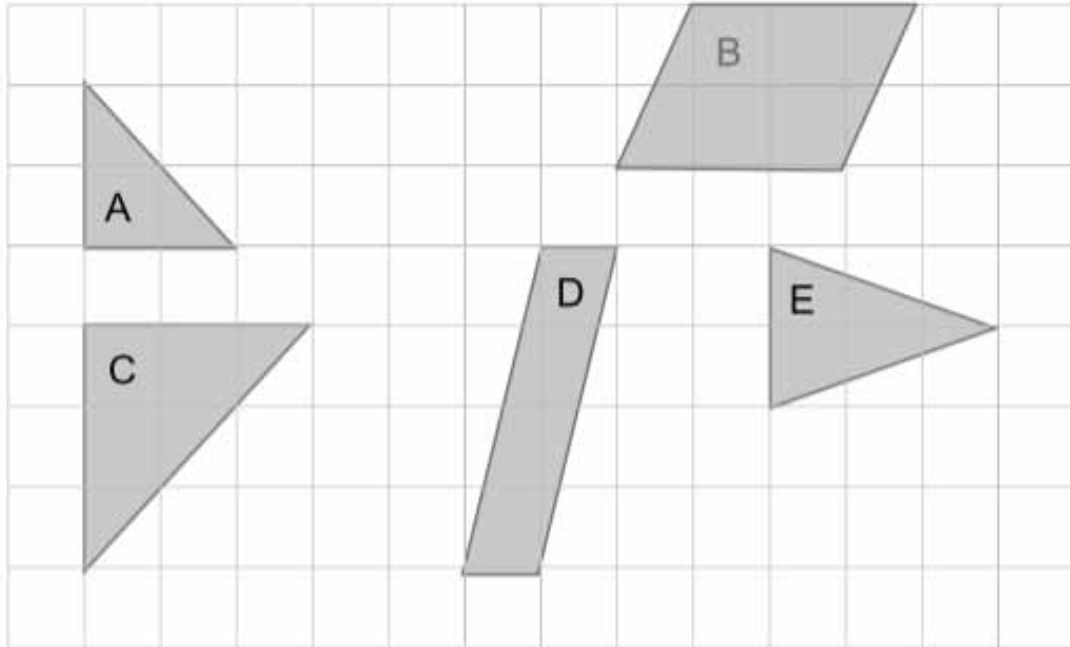
1 mark

- 5 Put the **same** number in each box to make the calculation correct.

$$140 + 10 - \boxed{} = \boxed{} - 30$$

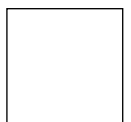
1 mark

6 Here are five shapes on a 1cm square grid:



Which two shapes together have a total area of 7cm^2 ?

_____ and _____



1 mark

- 7 Each row and column in this square has the same total.
Write the missing number in the empty square.

1.25	1.50	
1.85	1.63	0.52
0.9	0.87	2.23

1 mark

8

$2.46 \times 8 =$

1 mark

- 10 It takes John 3.5 minutes to walk to the end of his road, how many seconds is this?

seconds	
---------	--

1 mark

Wild elephants live to be approximately 42 months old. How many years and months is this?

years and	months	
-----------	--------	--

1 mark

11 A florist stocks three types of roses; pink, white and red.

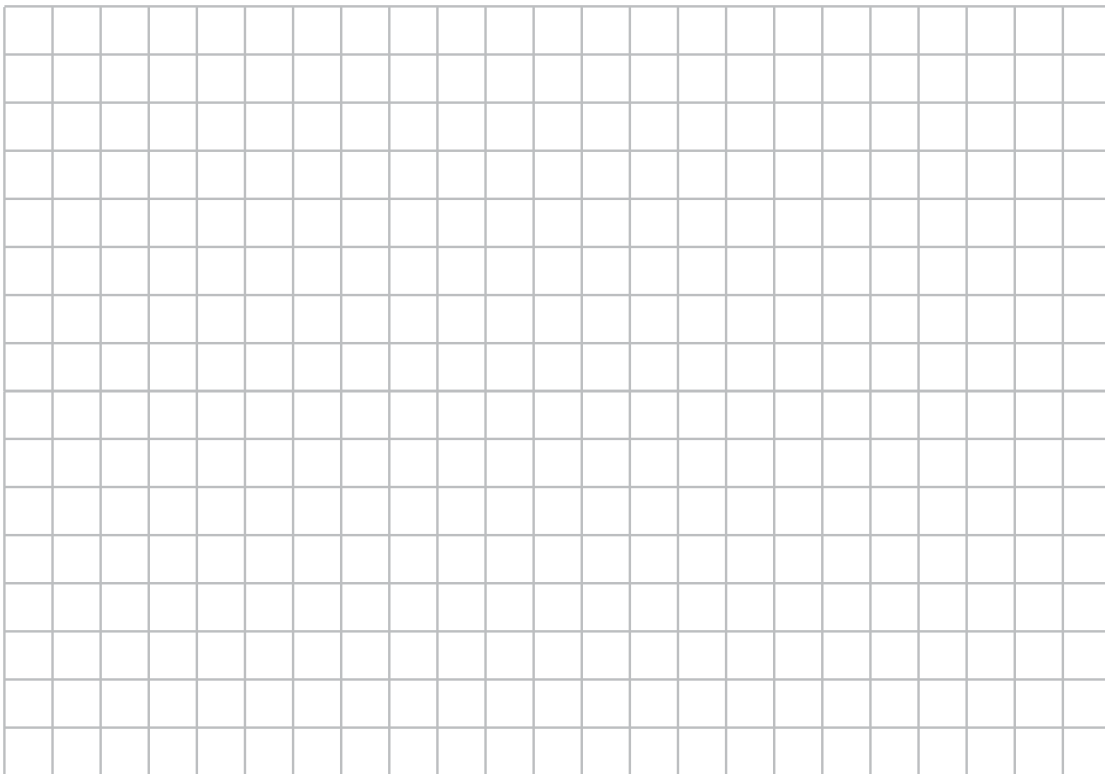
Half of all the roses are pink.

There are 28 red roses and there are twice as many white roses as red ones.

The florist sells all of the roses at 20p each.

How much money does she receive for the roses?

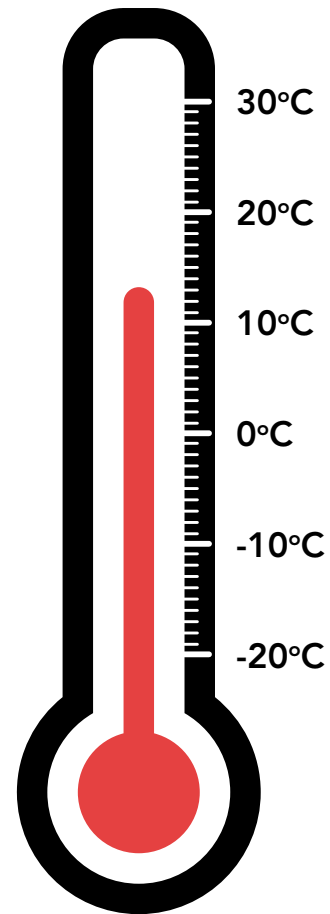
Show your method.

A large grid for showing the method of solving the problem. The grid is 20 squares wide and 15 squares high.

£	
---	--

2 marks

- 12 The temperature fell by 17°C overnight. The thermometer shows the current temperature:



What was the temperature before it fell by 17°C ?

<input type="text"/>	$^{\circ}\text{C}$	<input type="text"/>
----------------------	--------------------	----------------------

1 mark

- 13 The formula used to calculate the perimeter p of a rectangle is $p = 2 \times (a + b)$ where $a =$ length and $b =$ breadth.

What is the perimeter if $a = 5\text{cm}$ and $b = 3\text{cm}$?

--	--

1 mark

What is b if $p = 36\text{cm}$ and $a = 7\text{cm}$?

--	--

1 mark

14 A map has a scale of 1cm to 4km.

The road from Carton to Ambridge measures 5.8cm on the map.

How far is it from Carton to Ambridge in kilometres?

km	
----	--

1 mark

15 Match each calculation to the correct answer.

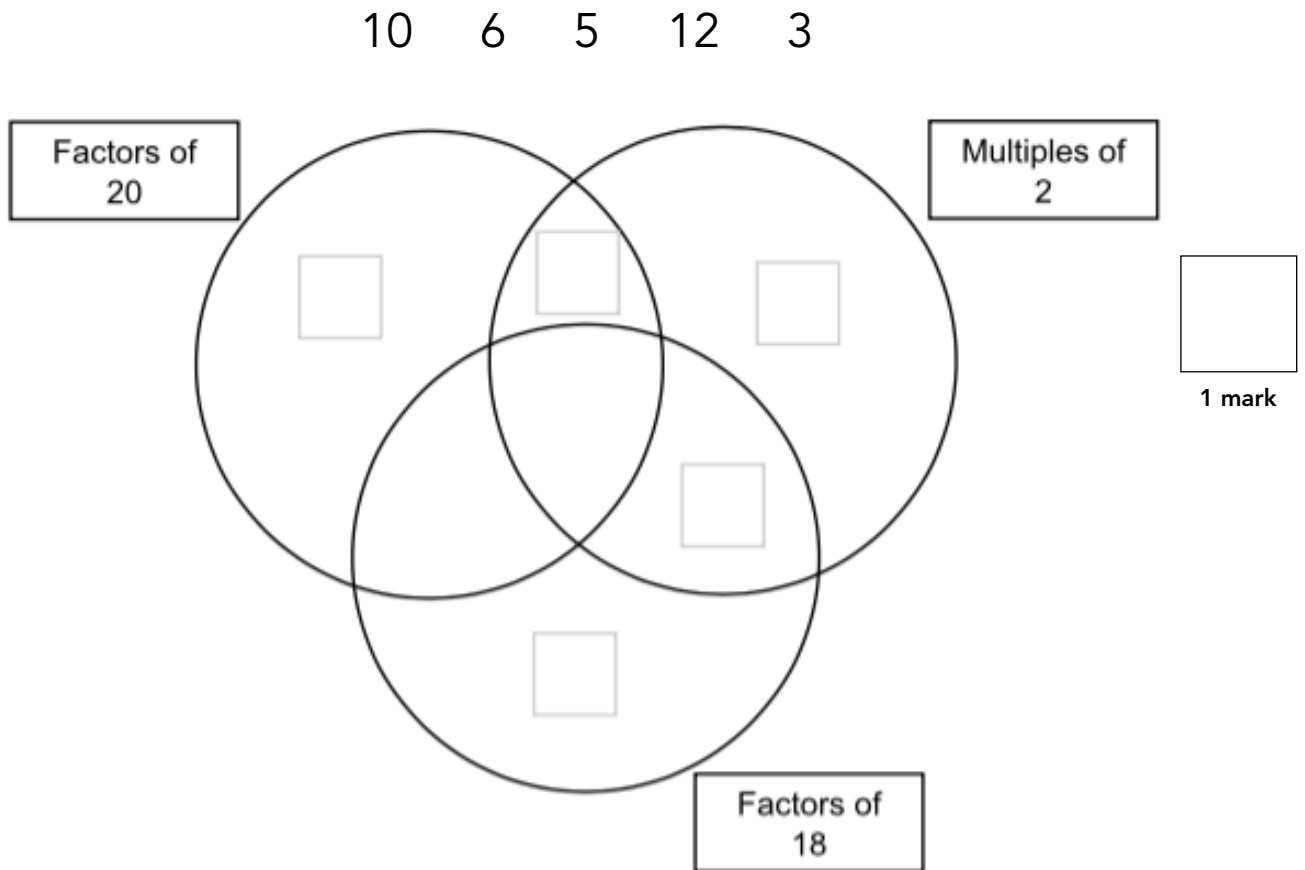
One has been done for you.

$4 + (4 \times 3) - 6$	27
$20 - 2 \times 7$	10
$14 \div 2 + 5 \times 4$	29
$16 \div 8 - 2$	0
$9 + 5 \times (7 - 3)$	6



2 marks

16 Write each number in its correct box on the Venn diagram.



Think of a number (that is not in the list above) that can go in the central section where all three circles overlap.

1 mark

17 Write these numbers in figures:

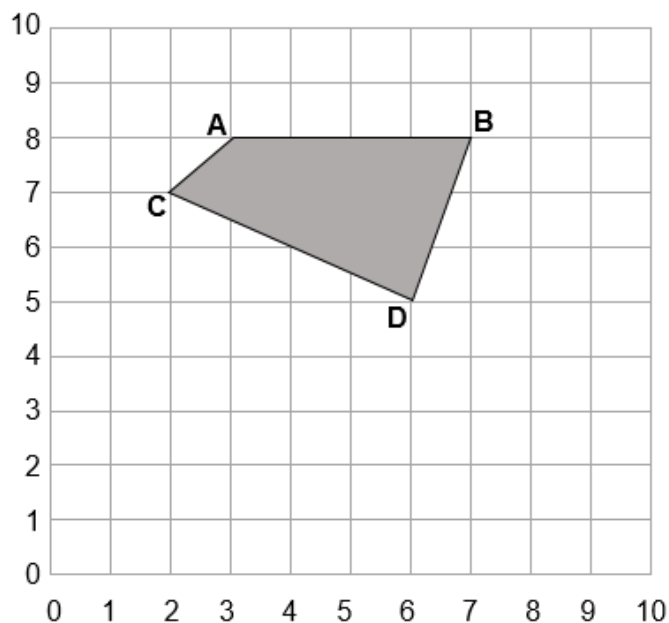
Five thousand and twenty-five

1 mark

One hundred and seven
thousand, four hundred and fifty

1 mark

- 18 A quadrilateral has been drawn on the co-ordinate grid below.



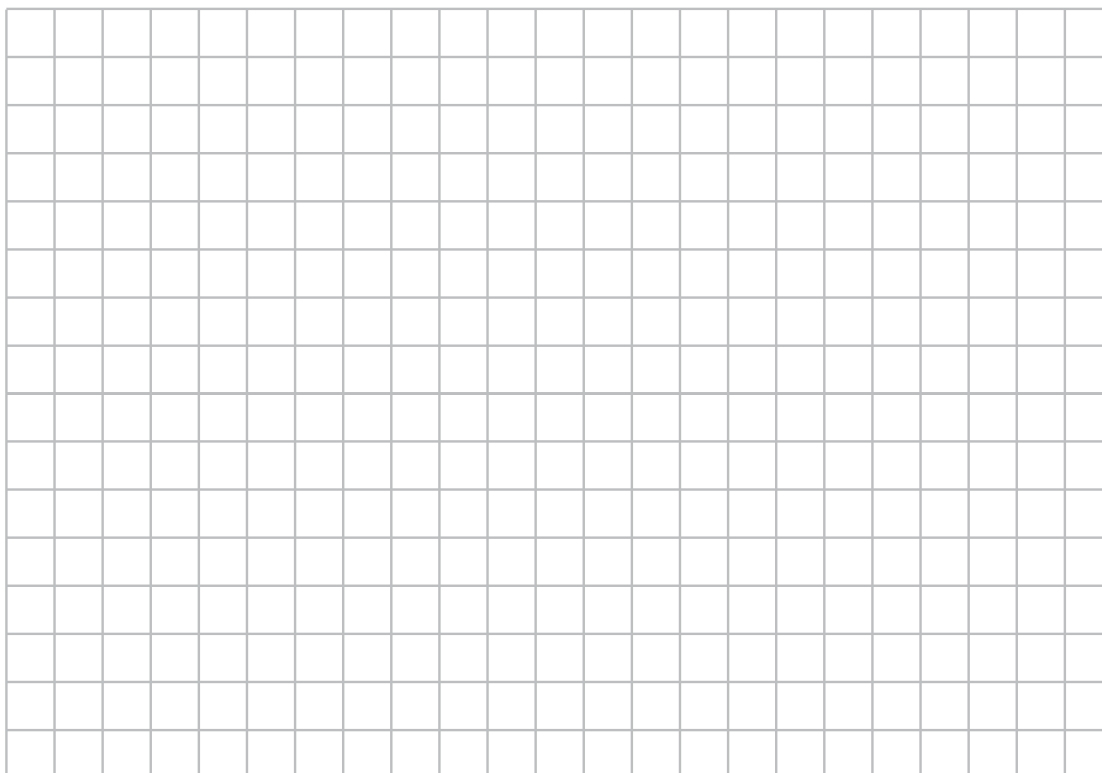
Where can you move corner B to make the shape a parallelogram?

(,)	
-----------------	--

1 mark

19 There are three 9 year olds to every five 10 year olds in Year 4. There are 88 children in Year 4.

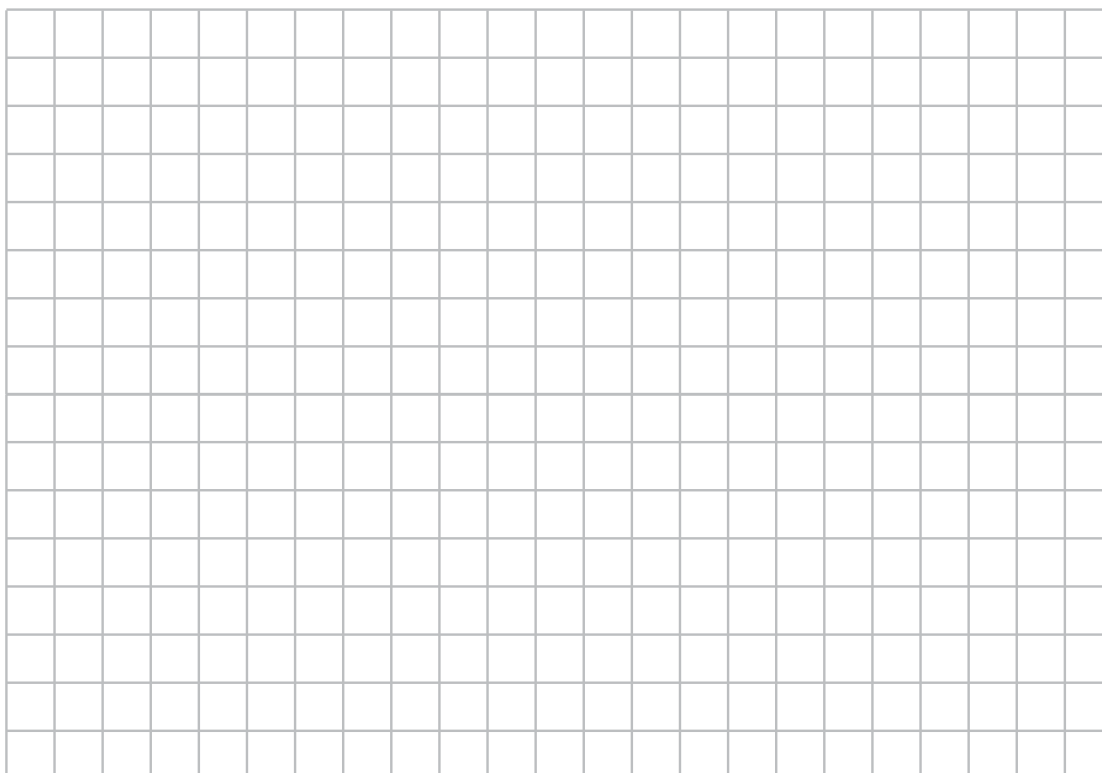
How many are 10 years old?



--	--

2 marks

- 20 Three friends won a total £6,000. Harriet won 40% of the total amount. Karl won 20% of the total amount. How much did Suresh win? Show your working out.

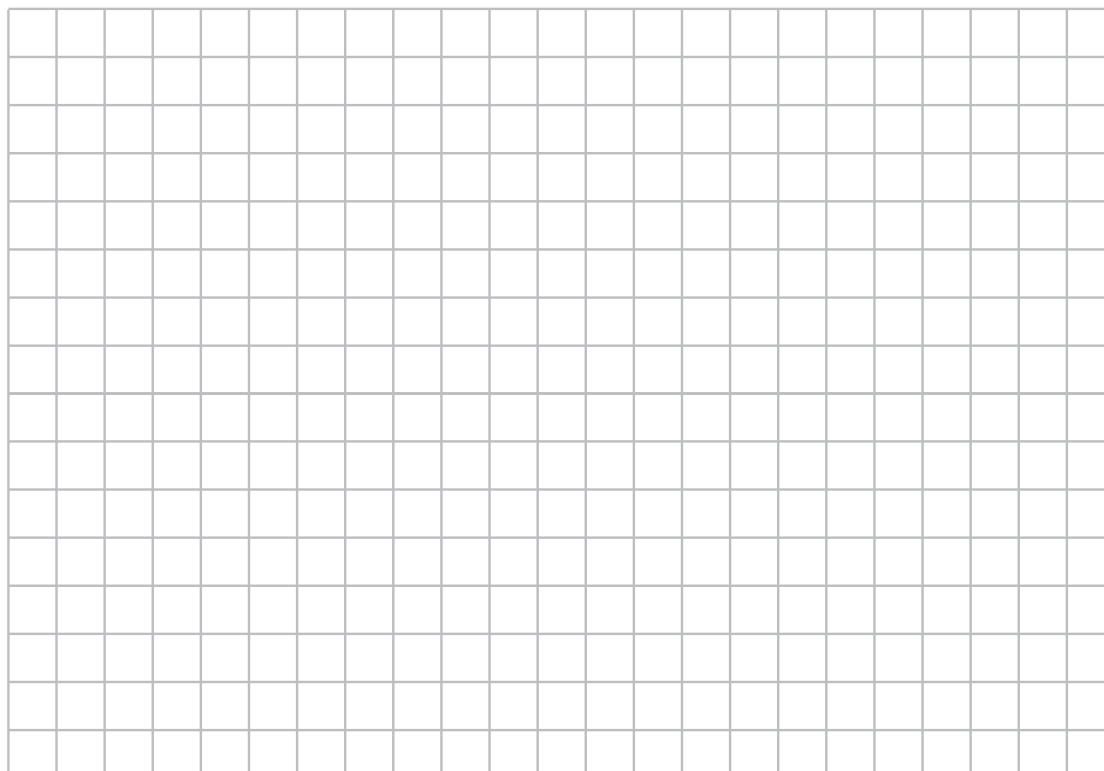


--	--

2 marks

21 Containers of sweets are packed in a box that is 40cm wide, 30cm long and 30cm high.

How many containers of sweets can fit in this box if each one is 10cm x 6cm x 2cm?



--	--

3 marks

The instructions and principles of this mark scheme closely follow the guidance in the 2016 national curriculum tests. We have deliberately not set a limited time for the test paper as a teacher may want to vary it according to the standard individual children are working at.

The national curriculum test allows 40 minutes to complete this test.

Demand Descriptors

T = Working towards expected standard

E = Working at expected standard

G = Working at greater depth within expected standard

Key Stage 2 SATs
 Mathematics Practice Test Mark Scheme
 Paper 3: Reasoning

Q	Required answer	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
1	a. 20	1m	Do not accept 170	3N3	Number	T
	b. 17	1m		4N3a		T
2	a. MMIX	1m	Accept alternative unambiguous indications, e.g. Roman numerals ticked or underlined Do not accept 219	5N3b	Number	E
	b. CCXIX	1m		5N3b		G
3	36 and 64	1m		5C5d	Calculation	E
4	a. 2006	1m		5S2	Statistics	T
	b. £40,000	1m		5S2		T
5	$140 + 10 - \mathbf{90} = \mathbf{90} - 30$	1m		3C4	Calculation	G
6	D and E	1m		6M7b	Measures	E
7	1.25	1m		6F9b	Fractions	E
8	19.68	1m		6F9b	Fractions	E

Q	Required answer	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
9	<p>Award TWO marks for the correct answer of 6. If the answer is incorrect award ONE mark for evidence of an appropriate method with no more than one arithmetic error, e.g.</p> <p>4950 x 7 = 34,650g 34,650 ÷ 1,000 = 34.65kg 34.65 ÷ 6 = 5.775 packs</p> <p>OR</p> <p>4.95 x 7 = 34.65kg 34.65 ÷ 6 = 5.775 packs</p> <p>OR</p> <p>4950 x 7 = 34,650g 34,650g ÷ 6,000 = 5.775</p> <p>OR</p> <p>Uses rounded mass: Lion eats 5kg each day = 35kg each week</p> <p>Needs 6 packs to provide 36kg</p>	<p>Up to 2m</p> <p>1m</p> <p>1m</p> <p>1m</p> <p>1m</p>	<p>Accept for ONE mark an answer of 5.775, as evidence of an appropriate method.</p> <p>OR</p> <p>The lion eats approx. 35kg each week</p>	6F10	Fractions	G G

Q	Required answer	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
10	a. 210 seconds b. 3 years and 6 months	1m		4M4c 4M4c	Measures	T T
11	Award TWO marks for the correct answer of £33.60 If the answer is incorrect award ONE mark for evidence of an appropriate method with no more than one arithmetic error, e.g. White = $28 \times 2 = 56$ White + red = $56 + 28 = 84$ Pink = 84 $84 + 84 = 168$ $168 \times 20 = 3360p$	Up to 2m	Accept for TWO marks a clear indication of the correct amount, e.g. £33.60p Accept for ONE mark an answer of £3360, £336.0 or £3360p as evidence of an appropriate method.	5C8b	Calculation	G G
12	30°C	1m		5N5	Number	E
13	a. 16cm b. 11cm	1m 1m		6A2 6A2	Algebra	E E
14	23.2km	1m		6R3	Ratio and proportion	E

Q	Required answer	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
15	<p>Award TWO marks for all 4 correct:</p> $4 + (4 \times 3) - 6 = 27$ $20 - 2 \times 7 = 10$ $14 \div 2 + 5 \times 4 = 29$ $16 \div 8 - 2 = 0$ $9 + 5 \times (7 - 3) = 6$ <p>Award ONE mark for 2 or 3 correct.</p>	Up to 2m		6C9 6C9	Calculation	E E
16	<p>a. Award ONE mark for all five numbers positioned correctly.</p> <p>b. 2</p>	1m 1m		6C5 6C5	Calculation	E E
17	<p>a. 5,025</p> <p>b. 107,450</p>	1m 1m	Accept 413g	6N2 6N2	Number	E E

Q	Required answer	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
18	Move corner B to (7, 6)	1m		6G2a	Geometry	E
19	Award TWO marks for the correct answer of 55. If the answer is incorrect, award ONE mark for evidence of an appropriate method with no more than one arithmetic error, e.g. 3 + 5 = 8 88 ÷ 8 = 11 1 part = 11 11 x 5 = 54 (error)	2m		6R1	Calculation	G

Q	Required answer	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
20	<p>Award TWO marks for the correct answer of £2,400</p> <p>If the answer is incorrect award ONE mark for evidence of an appropriate method with no more than one arithmetic error, e.g.</p> <p>$£6,000 \div 5 = £1,200$ $£1,200 \times 2 = £2,400$ (Harriet) 20% of £6,000 = £1,200 (Karl) $£1,200 + £2,400 = £3,600$ $£6,000 - £3,600 = £2,400$</p>	Up to 2m	<p>Accept for TWO marks a clear indication of the correct amount, e.g. £2,400p</p> <p>Accept for ONE mark the correct amount for either Harriet or Karl</p>	6F11 6F11	Fractions	E G

Q	Required answer	Mark	Acceptable answer or additional guidance	Content Domain Ref	NC strand	Level of demand
21	Sight of $36,000\text{cm}^2$ AND 120cm^2 Evidence of appropriate methods with no more than one arithmetic error Volume of box: $40 \times 30 \times 30 = 36,000\text{cm}^2$ Volume of one sweet container: $10 \times 6 \times 2 = 120\text{cm}^2$ $36,000 \div 120 = 300$	Up to 2m	TWO marks can be awarded if a misread number is followed through correctly OR If an answer of 270 is given, award TWO marks as evidence of the correct method but incorrect packing arrangement choice.	5M9d 5M9d 5M9d	Measures	E E G

Balance of difficulty of questions in the paper

3 marks at working towards
 25 marks at the expected standard
 7 marks at working at greater depth

Thresholds

Working towards the expected standard: Criteria for 'working at the expected standard' have not been met.

Working at the expected standard: at least 13 of the 25 'expected' marks are obtained, together with all 3 of the working towards marks, but none of the 7 marks graded 'greater depth'. This mark is 16 out of 35.

Working at greater depth: all of the 3 working toward marks are obtained, plus at least 90% of the 'expected' marks and at least 50% of the 'greater depth' marks. This mark is 29 out of 35.



THIRD SPACE
LEARNING

Third Space Learning Year 6 Maths SATs Foundation

Prepare early for SATs with 1-to-1 tuition starting in September. Our 1-to-1 Maths specialists will work with your target pupils to plug gaps, secure key concepts and develop problem solving skills.

Find out more here: <http://bit.ly/Y6Maths>

"Third Space has done wonders for pupils' attitudes towards maths - they look forward to their sessions. Also the fact I can pick and choose quality sessions is a huge asset."

Lisa Graham, Deputy Head, St Hughes C-of-E Primary

"My tutor understands when I don't get things right. She helps me through at a steady pace and always believes I can do it :)"

Millie, Year 5, Worcester