

Short Multiplication

Multiplying by a One-Digit Number

$$45 \times 6$$

- 1** Write the numbers above each other in the correct columns.

$$\begin{array}{r} 45 \\ \times 6 \\ \hline \end{array}$$

- 3** Multiply the tens digit in the two-digit number by the one-digit number and add any regrouped tens.

$$4 \text{ tens} \times 6 = 24 \text{ tens} + 3 \text{ tens} \\ = 27 \text{ tens} = 2 \text{ hundreds and } 7 \text{ tens}$$

$$\begin{array}{r} 45 \\ \times 6 \\ \hline 270 \\ 3 \end{array}$$

Write the answer in the provided section.

- 2** Multiply the ones digit in the two-digit number by the one-digit number.

$$5 \text{ ones} \times 6 \text{ ones} = 30 = 3 \text{ tens and } 0 \text{ ones}$$

Write 0 in the answer section and regroup the 3 tens by writing 3 below the tens column.

$$\begin{array}{r} 45 \\ \times 6 \\ \hline 0 \\ 3 \end{array}$$

4 $45 \times 6 = 270$

Long Multiplication

Multiplying by a Two-Digit Number

$$154 \times 26$$

1 Write the numbers above each other in the correct columns.

$$\begin{array}{r} 154 \\ \times 26 \\ \hline \end{array}$$

3 Next, multiply the tens in the three-digit numbers by the ones digits in the two-digit number and add any regrouped tens.

$$5 \text{ tens} \times 6 = 30 \text{ tens} + 2 \text{ tens} = 32 \text{ tens} = 3 \text{ hundreds and } 2 \text{ tens}$$

Write 2 in the answer section and regroup the 3 hundreds by writing 3 above the hundreds column.

2 First, multiply the ones in the three-digit number by the ones in the two-digit number.

$$4 \text{ ones} \times 6 \text{ ones} = 24 \text{ ones} = 2 \text{ tens and } 4 \text{ ones}$$

Write 4 in the answer section and regroup the 2 tens by writing 2 above the tens column.

$$\begin{array}{r} 2 \\ 154 \\ \times 26 \\ \hline 4 \end{array}$$

4 Finally, multiply the hundreds in the three-digit numbers by the ones digits in the two-digit number and add any regrouped hundreds.

$$1 \text{ hundred} \times 6 = 6 \text{ hundreds} + 3 \text{ hundreds} = 9 \text{ hundreds}$$

Write 9 in the answer section.

$$\begin{array}{r} 32 \\ 154 \\ \times 26 \\ \hline 24 \end{array}$$

$$\begin{array}{r} 32 \\ 154 \\ \times 26 \\ \hline 924 \end{array}$$

Long Multiplication

Multiplying by a Two-Digit Number

5

Cross out any previous regroupings.

In the next section, multiply the ones in the three-digit number by the tens in the two-digit number

Because the calculation involves multiplying by 20, a zero needs to be placed in the right-hand column as a place holder.

4 ones \times 2 tens = 8 tens

Write 8 in the answer section.

6

Multiply the tens in the three-digit number by the tens in the two-digit number and add any regrouped hundreds.

5 tens \times 2 tens = 1 thousand

Write 0 in the answer section and regroup the 1 thousands by writing a 1 above the thousands column.

$$\begin{array}{r} \cancel{3} \cancel{2} \\ 154 \\ \times \quad 26 \\ \hline 924 \\ 80 \end{array}$$

$$\begin{array}{r} 1 \cancel{3} \cancel{2} \\ 154 \\ \times \quad 26 \\ \hline 924 \\ 080 \end{array}$$

7

Multiply the hundreds in the three-digit number by the tens in the two-digit number and add any regrouped thousands.

1 hundred \times 2 tens = 2 thousands + 1 thousand = 3 thousands

Write 3 in the answer section.

8

Combine the totals using regrouping if required.

9

$154 \times 26 = 4004$

$$\begin{array}{r} 1 \cancel{3} \cancel{2} \\ 154 \\ \times \quad 26 \\ \hline 924 \\ 3080 \end{array}$$

$$\begin{array}{r} 1 \cancel{3} \cancel{2} \\ 154 \\ \times \quad 26 \\ \hline 924 \\ 3080 \\ 4004 \\ \hline 11 \end{array}$$

Short Division

Dividing by a One-Digit Number

$$84 \div 6$$

1

Partition 84 into tens and ones.

Work out how many 6s divide into 80 so that the answer is a multiple of 10.

In this case, the highest multiple of 10 divisible by 6 is 60.

Partition 84 into 60 and 24 then divide each number by 6.

Combine the totals.

2

Combine the totals.

$$\begin{array}{r} 10 + 4 \\ 6 \overline{) 60 + 24} \end{array}$$

3

This can be shortened to:

$$\begin{array}{r} 14 \\ 6 \overline{) 84} \end{array}$$

Short Division

Dividing by a Two-Digit Number

$$5284 \div 12$$

1 $12 \overline{) 5^5 2 8 4}$

First we divide 5 (thousands) by 12. This gives a result of 0 with a remainder of 5. The remainder 5 (thousands) is exchanged for 50 hundreds and placed into the hundreds column. This is shown by a small 5 in front of the existing 2 hundreds to make 52 hundreds.

2 $12 \overline{) 4 5^5 2^4 8 4}$

Next, we divide 52 (hundreds) by 12. This gives a result of 4 (hundreds) remainder 4. The remainder 4 (hundreds) is exchanged for 40 tens and placed into the tens column. This is shown by a small 4 in front of the existing 8 tens to make 48 tens. The 4 is written in the hundreds position of the answer above the line.

3 $12 \overline{) 4 4^5 2^4 8 4}$

Next we divide 48 (tens) by 12. This gives a result of 4. The 4 is written in the tens position of the answer above the line.

4 $12 \overline{) 4 4 0^4 8 4}$

Next, we divide 4 (ones) by 12. This cannot be done, so there are four remaining. A zero is placed in the ones answer section as well as remainder 4.

$$5284 \div 12 = 440 \text{ r}4$$

Short Division

Dividing by a Two-Digit Number Resulting in a Decimal Answer

$$5286 \div 12$$

1

$$12 \overline{) 5 \overset{5}{2} 8 6}$$

First, divide 5 (thousands) by 12. This gives a result of 0 with a remainder of 5. The remainder 5 (thousands) is exchanged for 50 hundreds and placed into the hundreds column. This is shown by a small 5 in front of the existing 2 hundreds to make 52 hundreds.

2

$$12 \overline{) 4 \overset{5}{2} \overset{4}{8} 6}$$

Next, divide 52 (hundreds) by 12. This gives a result of 4 (hundreds) remainder 4. The remainder 4 (hundreds) is exchanged for 40 tens and placed into the tens column. This is shown by a small 4 in front of the existing 8 tens to make 48 tens. The 4 is written in the hundreds position of the answer above the line.

3

$$12 \overline{) 4 \overset{5}{2} \overset{4}{8} 6}$$

Next, divide 48 (tens) by 12. This gives a result of 4. The 4 is written in the tens position of the answer above the line.

4

$$12 \overline{) 4 \overset{5}{2} \overset{4}{8} 6 \overset{6}{.} 0}$$

Next, divide 6 (ones) by 12. This cannot be done. This gives a result of 0 with a remainder of 6. Extend the number being divided to show the tenths place. The remainder 6 (ones) can now be exchanged for 60 tenths and placed into the tenths column. This is shown by a small 6 in front of 0 tenths to make 60 tenths. Remember to place the decimal point in your answer section.

5

$$12 \overline{) 4 \overset{5}{2} \overset{4}{8} 6 \overset{6}{.} 5}$$

Next, divide 60 (tenths) by 12. This gives a result of 5. The 5 is written in the tenths position of the answer above the line.

6

$$5286 \div 12 = 440.5$$

Long Division

Dividing by a Two-Digit Number Resulting in a Decimal Answer

$$591 \div 12$$

Work out the answer to two decimal places.

1

answer section

$$\begin{array}{r} 4 \\ 12 \overline{) 591} \\ \underline{48} \\ 111 \end{array}$$

First, work out how many 12s there are in 59. The answer to this question is 4, which is written above the 9. We then write the product of 4 and 12 (48) under 59 and subtract giving 11. The 1 is then brought down and written next to 11 to make 111.

2

answer section

$$\begin{array}{r} 49 \\ 12 \overline{) 591} \\ \underline{48} \\ 111 \\ \underline{108} \\ 3 \end{array}$$

Next, work out how many 12s there are in 111. The answer to this question is 9, which is written above the 1. Then, write the product of 9 and 12 (108) under 111 and subtract it, giving 3.

3

answer section

$$\begin{array}{r} 49.0 \\ 12 \overline{) 591.00} \\ \underline{48} \\ 111 \\ \underline{108} \\ 3 \end{array}$$

Extend 591 into decimals to continue the process of long division. The 0 in the tenths place is then brought down and written next to 3 to make 30.

Long Division

Dividing by a Two-Digit Number Resulting in a Decimal Answer

4

$$\begin{array}{r} \text{answer section} \\ 49.2 \\ \hline 12 \overline{) 591.00} \\ \underline{48} \\ 111 \\ \underline{108} \\ 30 \\ \underline{24} \\ 60 \\ \underline{60} \\ 0 \end{array}$$

Next, work out how many 12s there are in 30. The answer to this question is 2, which is written above the 0 in the tenths place. Then, write the product of 2 and 12 (24) under 30 and subtract it, giving 6. The 0 is then brought down and written next to 6 to make 60.

5

$$\begin{array}{r} \text{answer section} \\ 49.25 \\ \hline 12 \overline{) 591.00} \\ \underline{48} \\ 111 \\ \underline{108} \\ 30 \\ \underline{24} \\ .60 \\ \underline{.60} \\ 0 \end{array}$$

Next, find out how many 12s there are in 60. The answer to this question is 5, which is written above the 0 in the hundredths place. Then, write the product of 5 and 12 (60) under 60 and subtract it, giving zero.

$$591 \div 12 = 49.25$$