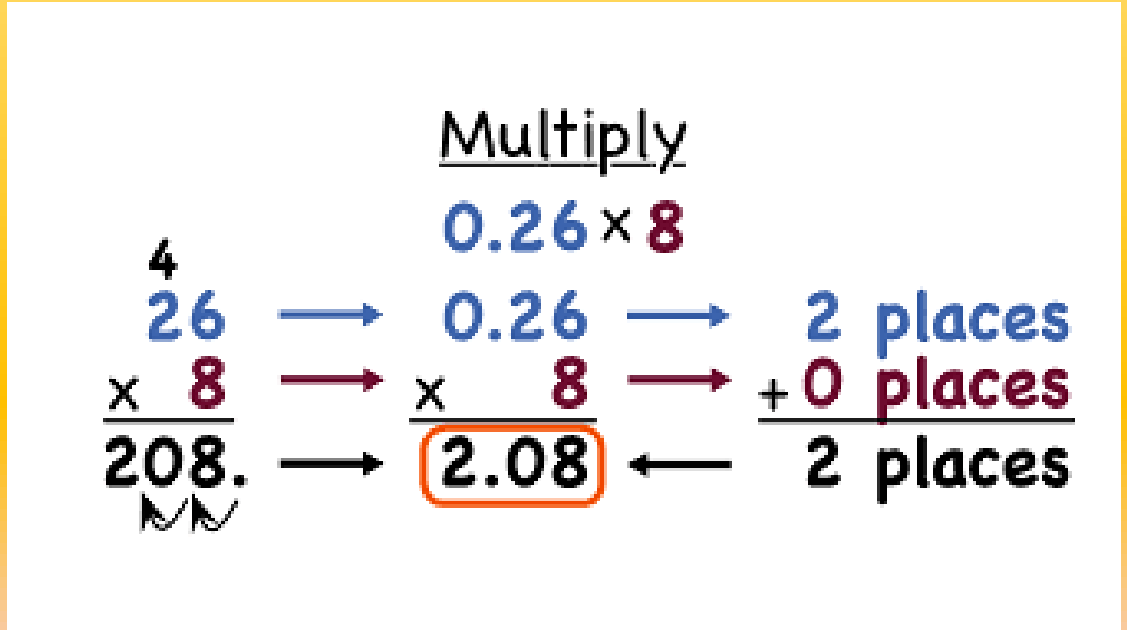
Day 1 – Multiply decimals by integers

The most important thing about multiplying decimals is to multiply the numbers as if they **did not** have decimals in.

Multiply as your normally would and then put the decimal point back in after – just remember there should be the same amount of digits **after** the decimal in your answer, as there was in the question.



Day 1 Starter

1) What is $68 \div 100$? 0.68

2) Complete $1.93 \times$ 1,000 $= 1{,}930$

3) Work out $1 - \frac{7}{10}$ $\frac{3}{10}$

4) What is 43×5? 215

Video Link: https://vimeo.com/490690764

Multiplying Decimals by Whole Numbers

1

$$\begin{array}{r} 3.\ 4\ 5 \\ \times\ 6 \\ \hline \\ \hline \end{array}$$

Write the numbers above each other in the correct columns.

2

$$\begin{array}{r} \ 3 \\ 3.\ 4\ 5 \\ \times\ 6 \\ \hline \ 0 \\ \hline \end{array}$$

Multiply the hundredths digit in the decimal number by the one-digit number. 5 hundredths × 6 ones = 30 hundredths = 3 tenths and 0 hundredths. Write 0 in the answer section and regroup the 3 tenths by writing 3 above the tenths column.

3

$$\begin{array}{r} \ 2\ 3 \\ 3.\ 4\ 5 \\ \times\ 6 \\ \hline \ 7\ 0 \\ \hline \end{array}$$

Multiply the tenths digit in the decimal number by the one-digit number and add any regrouped tenths. 4 tenths × 6 ones = 24 tenths + 3 tenths = 27 tenths = 2 ones and 7 tenths. Write 7 in the answer section and regroup the 2 ones by writing 2 above the ones column. Write the answer in the provided section.

4

$$\begin{array}{r} \ 2\ 3 \\ 3.\ 4\ 5 \\ \times\ \ 6 \\ \hline 2\ 0.\ 7\ 0 \\ \hline \end{array}$$

Multiply the ones digit in the decimal number by the one-digit number and add any regrouped ones. 3 ones × 6 ones = 18 ones + 2 ones = 20 ones = 2 tens and 0 ones. Write the answer in the provided section.

5 $3.45 \times 6 = 20.70$

Multiplying Single Digit Decimals

Aim: to multiply single digit decimal numbers by whole numbers

Calculate the following mentally:

0.6 x 4 =	9 x 0.2 =	4 x 0.4 =
2 x 0.5 =	4 x 0.6 =	0.1 x 7 =
8 x 0.8 =	5 x 0.7 =	0.5 x 7 =
0.5 x 3 =	7 x 0.4 =	8 x 0.2 =
6 x 0.5 =	4 x 0.8 =	9 x 0.3 =
0.4 x 9 =	0.6 x 6 =	2 x 0.7 =

1 star answers

0.6 x 4 = 2.4	9 x 0.2 = 1.8	4 x 0.4 = 1.6
2 x 0.5 = 1	4 x 0.6 = 2.4	0.1 x 7 = 0.7
8 x 0.8 = 6.4	5 x 0.7 = 3.5	0.5 x 7 = 3.5
0.5 x 3 = 1.5	7 x 0.4 = 2.8	8 x 0.2 = 1.6
6 x 0.5 = 3	4 x 0.8 = 3.2	9 x 0.3 = 2.7
0.4 x 9 = 3.6	0.6 x 6 = 3.6	2 x 0.7 = 1.4

Use long multiplication to work out the calculations.

a)

		4	·	8	6
	×				4

b)

		2	·	0	9
	×				6

4 Work out the multiplications.

a) 5.2 × 4

b) 14.3 × 3

c) 6 × 9.1

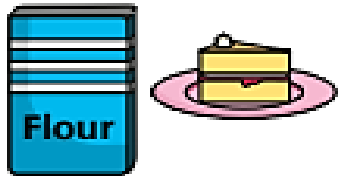
d) 2.34 × 3

e) 11.505 × 4

f) 9.602 × 6

5 0.25 kg of flour is needed to make one cake.

How much flour is needed to make four cakes?



6 Work out the multiplications.

a) 7.2 × 2

7.2 × 4

14.4 × 4

7.2 × 8

b) 3.45 × 3

34.5 × 3

345 × 3

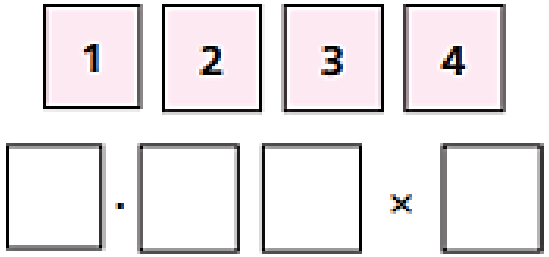
7 Amir is solving 3.4 × 4

To solve this, I did 34 × 4, which was 136
Then I multiplied my answer by 10 to get an answer of 1,360

Do you agree with Amir?

Explain why.

8 Use the digits 1, 2, 3 and 4 once each to create a calculation.



a) How many different products can you make?

b) What is the greatest possible product?

c) What is the smallest possible product?

d) What is the product closest to 12?

Compare answers with a partner.

2 star answers

4 Work out the multiplications.

a) 5.2 × 4 = 20·8

b) 14.3 × 3 = 42·9

c) 6 × 9.1 = 54·6

d) 7·02 = 2.34 × 3

e) 11.505 × 4 = 46·02

f) 9.602 × 6 = 57·612

5 0.25 kg of flour is needed to make one cake.

How much flour is needed to make four cakes?

1 kg

6 Work out the multiplications.

a) 7.2 × 2 = 14·4

7.2 × 4 = 28·8

14.4 × 4 = 57·6

7.2 × 8 = 57·6

b) 10·35 = 3.45 × 3

103·5 = 34.5 × 3

1,035 = 345 × 3

7 Amir is solving 3.4 × 4

To solve this, I did 34 × 4, which was 136 Then I multiplied my answe by 10 to get an answer of 1,360

Do you agree with Amir? No

Explain why.

34 is ten times bigger than 3·4 so he should have divided by 10 to get 13·6

8 Use the digits 1, 2, 3 and 4 once each to create a calculation..

1	2	3	4

□ . □ □ × □

a) How many different products can you make?

b) What is the greatest possible product?

12 · 84

c) What is the smallest possible product?

2·34

d) What is the product closest to 12?

12·36

Compare answers with a partner.

1) The number for each part of my bar model is represented here in this place value grid.

ones	tenths	hundredths
1 1 1	0.1 0.1	0.01

What is the total value of my bar model?

2) Use bar model B to help you give the total value of bar model A.

A

B

0.39	0.39	0.39	0.39	0.39

Total value of bar model A: _____

Total value of bar model B: _____

3) Complete the multiplication tables with the missing numbers.

a)

×	3.47	5.89
3		
5		

1) Ava is using a place value chart to help her find the answer to this missing digit multiplication question.

□.□□ × 3 = 6.96

ones	tenths	hundredths
1 1	0.1 0.1	0.01
1 1	0.1 0.1	0.01
1 1	0.1 0.1	0.01

a) Has Ava represented the question correctly? Which multiplication calculation does Ava's place value chart represent?

I think that in order to find the correct missing number Ava must add another tenth counter and another hundredth counter to each row of the place value grid.

b) Is Joshua correct? Explain your reasoning.

2) Amrit and his friends are trying to decide the cheapest way to buy 28 cans of soft drink for his birthday party.

4 pack	6 pack
£2.19	£2.95

I think we should buy five of the 6 packs.

Devinder

I think we should buy seven of the 4 packs.

Ben

Morgan

I think we should buy four of the 6 packs and one of the 4 packs.

Whose advice should he follow in order to buy the cans of drink for the cheapest price?

3 star answers

1) $3.21 \times 4 = 12.84$

2) $A = 1.95 \times 3 = 5.85$

$B = 0.39 \times 5 = 1.95$

3) a)

×	3.47	5.89
3	10.41	17.67
5	17.35	29.45

b)

×	1.62	4.24
2	3.24	8.48
6	9.72	25.44

4) c) $0.58 \times 8 = 4.64cm$

Eva's growth is $4.64cm \times 3 = 13.92cm$

$13.92cm - 4.64cm$ (average growth) $= 9.28cm$ more growth

1) a) $2.21 \times 3 = 6.63$

b) Joshua is correct. If Ava adds another tenth counter to each row and another hundredth counter to each row, she will now have represented $2.32 \times 3 = 6.96$ as required in the original question.

2) $5 \times £2.95 = £14.75$

$7 \times £2.19 = £15.33$

$4 \times £2.95 = £11.80 + £2.19 = £13.99$

Morgan is correct as four 6 packs will cost £11.80 ($4 \times £2.95$) and added to £2.19 for a 4 pack makes a total of £13.99.