

Reasoning and Problem Solving

Step 4: Multiply Decimals by Integers

National Curriculum Objectives:

Mathematics Year 6: (6F9b) [Multiply one-digit numbers with up to two-decimal places by whole numbers](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Identify and explain the odd one out of 3 calculations. Includes multiplying one-digit numbers with one decimal place by 2, 3, 4 and 5.

Expected Identify and explain the odd one out of 3 calculations. Includes multiplying one-digit numbers with two decimal places by one-digit whole numbers.

Greater Depth Identify and explain the odd one out of 3 calculations. Includes multiplying one-digit numbers with three decimal places by one-digit whole numbers and zeroes in decimal places.

Questions 2, 5 and 8 (Problem Solving)

Developing Arrange the number cards to create a calculation and identify the cards which are not needed. Includes multiplying one-digit numbers with one decimal place by 2, 3, 4 and 5.

Expected Arrange the number cards to create a calculation and identify the cards which are not needed. Includes multiplying one-digit numbers with two decimal places by one-digit whole numbers.

Greater Depth Arrange the number cards to create a calculation and identify the cards which are not needed. Includes multiplying one-digit numbers with three decimal places by one-digit whole numbers and zeroes in decimal places.

Questions 3, 6 and 9 (Reasoning)

Developing Explain the mistake made in a multiplication calculation and find the correct answer. Includes multiplying one-digit numbers with one decimal place by 2, 3, 4 and 5.

Expected Explain the mistake made in a multiplication calculation and find the correct answer. Includes multiplying one-digit numbers with two decimal places by one-digit whole numbers.

Greater Depth Explain the mistake made in a multiplication calculation and find the correct answer. Includes multiplying one-digit numbers with three decimal places by one-digit whole numbers and zeroes in decimal places.

[More resources](#) which follow the same small steps as White Rose.

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Multiply Decimals by Integers

Multiply Decimals by Integers

1a. Circle the odd one out.

$$5.3 \times 3$$

$$6.8 \times 2$$

$$3.4 \times 4$$

Explain your reasoning.



R

1b. Circle the odd one out.

$$4.4 \times 4$$

$$8.8 \times 2$$

$$9.1 \times 2$$

Explain your reasoning.



R

2a. Select and arrange the cards to create a multiplication calculation.

5.2	4.1	20.5
5	21.5	4

$$\square \times \square = \square$$

Which cards are not needed?



PS

2b. Select and arrange the cards to create a multiplication calculation.

6.3	7.3	21.9
3	24.9	4

$$\square \times \square = \square$$

Which cards are not needed?



PS

3a. Mr Chen shares the calculation below with Class 6:

$$7.2 \times 4 =$$

Mia says,



The product is 11.2

What mistake has Mia made?

What is the correct answer?



R

3b. Miss Jones shares the calculation below with Class 6:

$$3.3 \times 5 =$$

Alfie says,



The product is 15.3

What mistake has Alfie made?

What is the correct answer?



R

Multiply Decimals by Integers

Multiply Decimals by Integers

4a. Circle the odd one out.

$$6.36 \times 4$$

$$4.88 \times 6$$

$$3.18 \times 8$$

Explain your reasoning.



R

4b. Circle the odd one out.

$$2.78 \times 8$$

$$3.93 \times 7$$

$$5.56 \times 4$$

Explain your reasoning.



R

5a. Select and arrange the cards to create a multiplication calculation.

7.29	6	8.28	5	
35.65	7.31	8	36.55	
<input type="text"/>	x	<input type="text"/>	=	<input type="text"/>

Which cards are not needed?



PS

5b. Select and arrange the cards to create a multiplication calculation.

32.21	5.85	6	8	
8.43	5	46.71	50.58	
<input type="text"/>	x	<input type="text"/>	=	<input type="text"/>

Which cards are not needed?



PS

6a. Mr Smith shares the calculation below with Class 6:

$$5.47 \times 6 =$$

Fay says,



The product is 30.47

What mistake has Fay made?

What is the correct answer?



R

6b. Mrs Patel shares the calculation below with Class 6:

$$6.91 \times 7 =$$

Seth says,



The product is 48.73

What mistake has Seth made?

What is the correct answer?



R

Multiply Decimals by Integers

Multiply Decimals by Integers

7a. Circle the odd one out.

$$8.058 \times 3$$

$$6.043 \times 8$$

$$4.029 \times 6$$

Explain your reasoning.



R

7b. Circle the odd one out.

$$5.031 \times 7$$

$$9.502 \times 4$$

$$4.751 \times 8$$

Explain your reasoning.



R

8a. Select and arrange the cards to create a multiplication calculation.

53.468	7.706	8	7.607	
68.463	9	6.706	69.534	
<input type="text"/>	x	<input type="text"/>	=	<input type="text"/>

Which cards are not needed?



PS

8b. Select and arrange the cards to create a multiplication calculation.

57.762	6.084	7	6.804	
54.756	47.268	6.408	9	
<input type="text"/>	x	<input type="text"/>	=	<input type="text"/>

Which cards are not needed?



PS

9a. Mr Hill shares the calculation below with Class 6:

$$5.097 \times 7 =$$

Bella says,



The product is 35.079

What mistake has Bella made?

What is the correct answer?



R

9b. Mrs Davies shares the calculation below with Class 6:

$$4.002 \times 8 =$$

Jason says,



The product is 32.16

What mistake has Jason made?

What is the correct answer?



R

Reasoning and Problem Solving Multiply Decimals by Integers

Developing

- 1a. 5.3×3 is the odd one out because this equals 15.9. The other calculations equal 13.6.
- 2a. $4.1 \times 5 = 20.5$. The cards 5.2, 21.5 and 4 are not needed.
- 3a. Mia has added the numbers instead of multiplying them. The correct answer is 28.8.

Expected

- 4a. 4.88×6 is the odd one out because this equals 29.28. The other calculations equal 25.44.
- 5a. $7.31 \times 5 = 36.55$. The cards 7.29, 6, 8.28 35.65 and 8 are not needed.
- 6a. Fay has not multiplied the tenths and hundredths by 6. She has worked out $5 \times 6 = 30$ then added the decimal places. The correct answer is 32.82.

Greater Depth

- 7a. 6.043×8 is the odd one out because this equals 48.344. The other calculations equal 24.174.
- 8a. $7.607 \times 9 = 68.463$. The cards 53.468, 7.706, 8, 6.706 and 69.534 are not needed.
- 9a. Bella has 0 tenths in her answer. She has forgotten to carry the 6 tenths over. The correct answer is 35.679.

Reasoning and Problem Solving Multiply Decimals by Integers

Developing

- 1b. 9.1×2 is the odd one out because this equals 18.2. The other calculations equal 17.6.
- 2b. $7.3 \times 3 = 21.9$. The cards 6.3, 24.9 and 4 are not needed.
- 3b. Alfie has not multiplied the tenths by 5. He has worked out $3 \times 5 = 15$ then added the decimal place. The correct answer is 16.5.

Expected

- 4b. 3.93×7 is the odd one out because this equals 27.51. The other calculations equal 22.24.
- 5b. $8.43 \times 6 = 50.58$. The cards 32.21, 5.85, 8, 5 and 46.71 are not needed.
- 6b. Seth has written the tenths and hundredths in the incorrect order. The correct answer is 48.37

Greater Depth

- 7b. 5.031×7 is the odd one out because this equals 35.217. The other calculations equal 38.008.
- 8b. $6.084 \times 9 = 54.756$. The cards 57.762, 7, 6.804, 47.268 and 6.408 are not needed.
- 9b. Jason has not included the 0 tenths in his answer. The correct answer is 32.016.