

Week 3

This week in a nutshell:

The primary objective for this week is fluency and confidence in skills that are useful in themselves and across a variety of other topic areas; with this in mind, questions 1-4 are familiar ground for the students. Question 5 covers the concept of similarity with the diagrams making the corresponding sides obvious (from the visual context) without the need for corner labelling, so that analysis focuses on how to apply the ideas.

Question 1: Completing sequences

Question 2: Multiplicative reasoning

Question 3: Converting a decimal to a fraction

Question 4: Forming algebraic expressions

Question 5: Similarity

The questions aim to develop and deepen understanding over the week. Due to the necessity of the topics covered this week, there is an emphasis on the interchangeability of command words, and language flexibility. It may be worth taking some extra time this week to make sure your students are developing their mathematical literacy.

This week's ideas for class discussion include:

Question 1: **Completing sequences**

- Can a sequence ever be fully complete?

Question 2: **Multiplicative reasoning**

- Why might division be needed in multiplicative reasoning? Why is this not a contradiction?

Question 3: **Converting a decimal to a fraction**

- Can every decimal be written as a fraction?

Question 4: **Forming algebraic expressions**

- *reflect on previous learning*

Question 5: **Similarity**

- What makes shapes similar?
- How can similarity in shapes be used to solve problems?

Week 3: Day 1

- 1) Complete the sequence:

3, 9, 15, 21, ____, ____, ...

- 2) Three bottles of milk costs £3.60. How much is it to buy five bottles of milk?
-

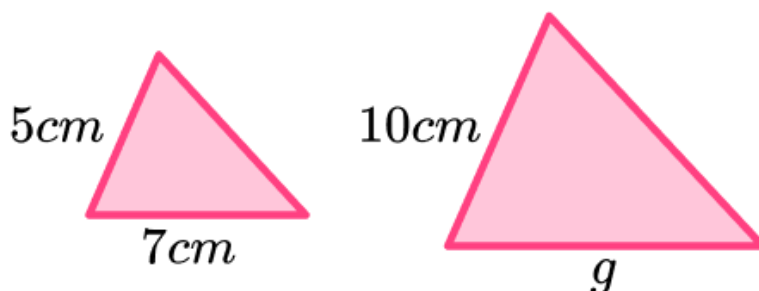
- 3) Write 0.45 as a fraction in its simplest form.
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- 4) Write an algebraic expression for the mathematical statement:

“a number multiplied by itself”

(you should use n as the variable)

- 5) The two triangles below are similar. What is the length of side g ?



Week 3: Day 1 Answers

- 1) Complete the sequence:

3, 9, 15, 21, 27, 33, ...

- 2) Three bottles of milk costs £3.60. How much is it to buy five bottles of milk?

£6

- 3) Write 0.45 as a fraction in its simplest form.

$\frac{9}{20}$

- 4) Write an algebraic expression for the mathematical statement:

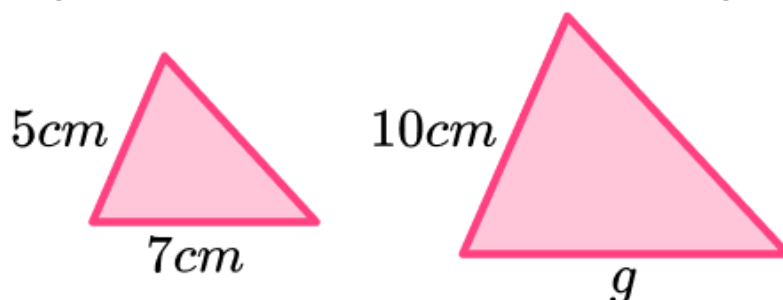
“a number multiplied by itself”

n^2

(you should use n as the variable)

- 5) The two triangles below are similar. What is the length of side g ?

14cm



Week 3: Day 2

- 1) Complete the sequence:

2, __, 16, __, 30, 37, ...

- 2) Eight flapjacks costs £6. How much is it to buy five flapjacks?

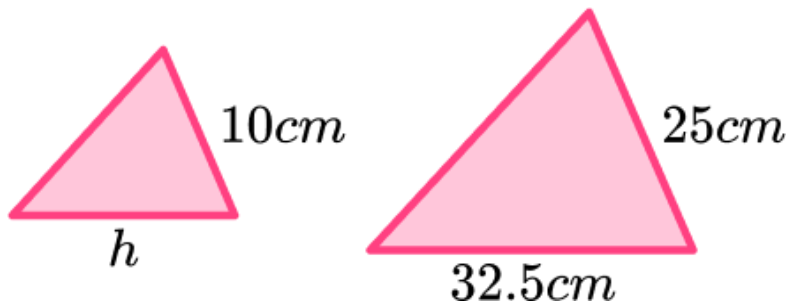
- 3) Write 0.12 as a fraction in its simplest form.

- 4) Write an algebraic expression for the mathematical statement:

“Three lots of a number subtracted from eighteen”

(you should use n as the variable)

- 5) The two triangles below are similar. What is the length of side h ?



Week 3: Day 2 Answers

- 1) Complete the sequence:

2, 9, 16, 23, 30, 37, ...

- 2) Eight flapjacks costs £6. How much is it to buy five flapjacks?

£3.75

- 3) Write 0.12 as a fraction in its simplest form.

$\frac{3}{25}$

- 4) Write an algebraic expression for the mathematical statement:

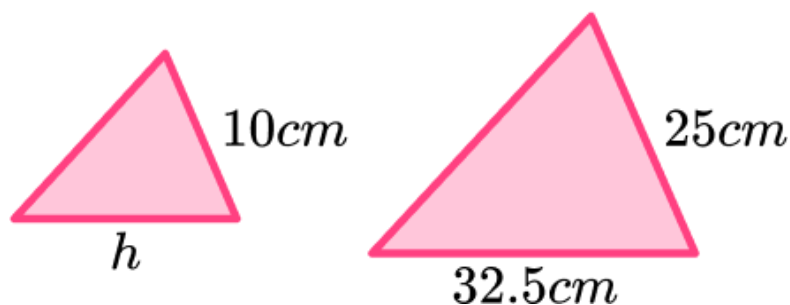
“Three lots of a number subtracted from eighteen”

$18 - 3n$

(you should use n as the variable)

- 5) The two triangles below are similar. What is the length of side h ?

13cm



Week 3: Day 3

- 1) Complete the sequence:

1.1, 1.7, __, __, 3.5, ...

- 2) Five light bulbs cost £7. How much does it cost to buy two light bulbs?

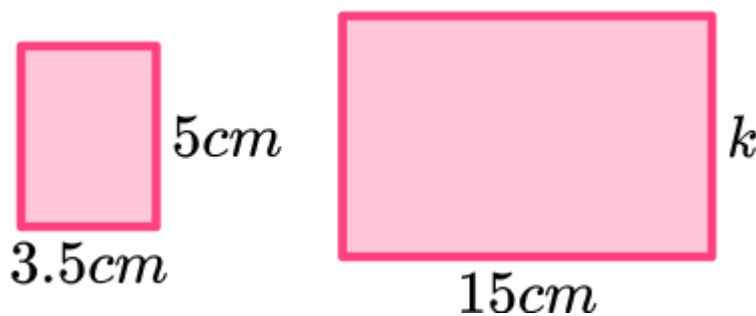
- 3) Write 0.98 as a fraction in its simplest form.

- 4) Write an algebraic expression for the mathematical statement:

“Sixty five divided by a number that has been doubled”

(you should use n as the variable)

- 5) The two rectangles below are similar. What is the length of side k , where k is the shorter side of the larger rectangle?



Week 3: Day 3 Answers

- 1) Complete the sequence:

1.1, 1.7, 2.3, 2.9, 3.5, ...

- 2) Five light bulbs cost £7. How much does it cost to buy two light bulbs?

£2.80

- 3) Write 0.98 as a fraction in its simplest form.

$\frac{49}{50}$

- 4) Write an algebraic expression for the mathematical statement:

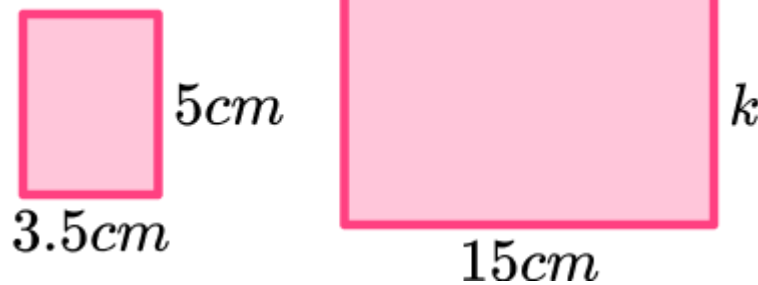
“Sixty five divided by a number that has been doubled”

$\frac{65}{2n}$

(you should use n as the variable)

- 5) The two rectangles below are similar. What is the length of side k , where k is the shorter side of the larger rectangle?

10.5cm



Week 3: Day 4

- 1) Complete the sequence:

____, -4, 2, 8, ____, ...

- 2) Twelve cartons of juice costs £10.20. How much does it cost to buy seven cartons?

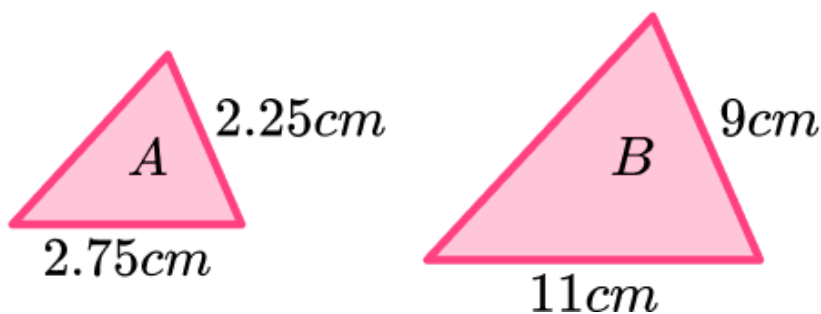
- 3) Write 0.325 as a fraction in its simplest form.

- 4) Write an algebraic expression for the mathematical statement:

“Seventeen added to a number, all multiplied by three.”

(you should use n as the variable)

- 5) Given that these two triangles are similar, determine the scale factor of enlargement from A to B .



Week 3: Day 4 Answers

- 1) Complete the sequence:

-10, -4, 2, 8, 14, ...

- 2) Twelve cartons of juice costs £10.20. How much does it cost to buy seven cartons?

£5.95

- 3) Write 0.325 as a fraction in its simplest form.

$\frac{13}{40}$

- 4) Write an algebraic expression for the mathematical statement:

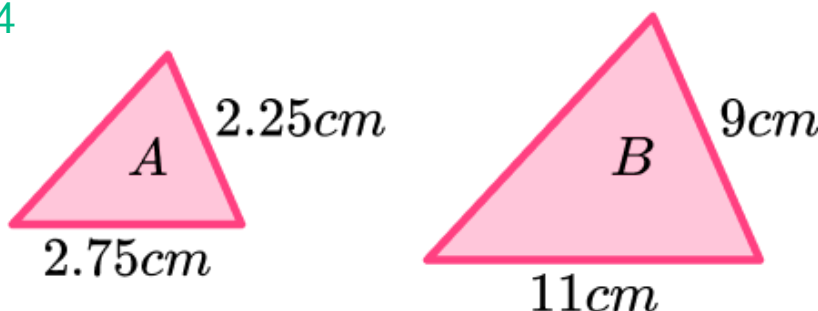
“Seventeen added to a number, all multiplied by three.”

$3(n + 17)$

(you should use n as the variable)

- 5) Given that these two triangles are similar, determine the scale factor of enlargement from A to B .

$sf = 4$



Week 3: Day 5

- 1) Complete the sequence:

____, ____, 19, 12, 5, ...

- 2) Fifteen books costs £9.30. How much is it to buy forty books?

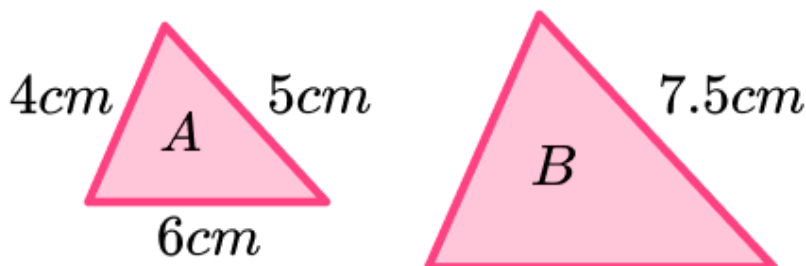
- 3) Write 0.208 as a fraction in its simplest form.

- 4) Write an algebraic expression for the mathematical statement:

“Five divided by a number, then subtracted from nine.”

(you should use n as the variable)

- 5) Given that these two triangles are similar, determine the perimeter of triangle B .



Week 3: Day 5 Answers

- 1) Complete the sequence:

33, 26, 19, 12, 5, ...

- 2) Fifteen books costs £9.30. How much is it to buy forty books?

£24.80

- 3) Write 0.208 as a fraction in its simplest form.

$\frac{26}{125}$

- 4) Write an algebraic expression for the mathematical statement:

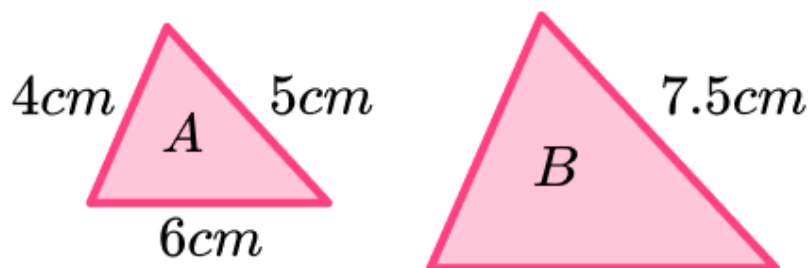
“Five divided by a number, then subtracted from nine.”

$$9 - \frac{5}{n}$$

(you should use n as the variable)

- 5) Given that these two triangles are similar, determine the perimeter of triangle B .

22.5cm



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