

## Week 8

### This week in a nutshell:

This week the focus moved towards dealing with variables and algebraic thinking. This is dealt with through concepts that students may have seen before, but mixes familiar topics with some new ones.

**Question 1:** Using sequences

**Question 2:** Arithmetic with decimals

**Question 3:** Missing numbers

**Question 4:** Using variables

**Question 5:** Writing expressions

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: **Using sequences**

- Is reasoning or computation more important?

Question 2: **Arithmetic with decimals**

- Why is understanding place value really important when adding decimals?

Question 3: **Missing numbers**

- Are the numbers "missing" or just unknown? How do we use language in maths?

Question 4: **Using variables**

- Why are variables frequently seen in maths?

Question 5: **Writing expressions**

- How has your confidence in working between algebraic expressions and language changed?

## Week 8: Day 1

- 1) Giving a reason, decide if 97 will be in this sequence:

4, 10, 16, 22, 28, ...

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- 2) Work out:

a)  $3.4 + 7.9 =$

b)  $2.2 \times 6 =$

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- 3) Make this statement true:

$$19 + \boxed{\phantom{00}} = 26$$

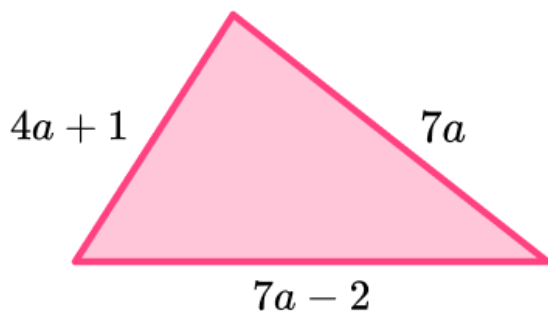
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- 4) Using  $n$  as a variable, write an expression that means the same as:

“Eleven added to a number”

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- 5) Write an expression for the perimeter of this triangle.



## Week 8: Day 1 Answers

- 1) Giving a reason, decide if 97 will be in this sequence:

4, 10, 16, 22, 28, ... No, all terms are even

- 2) Work out:

c)  $3.4 + 7.9 = 11.3$

d)  $2.2 \times 6 = 13.2$

- 3) Make this statement true:

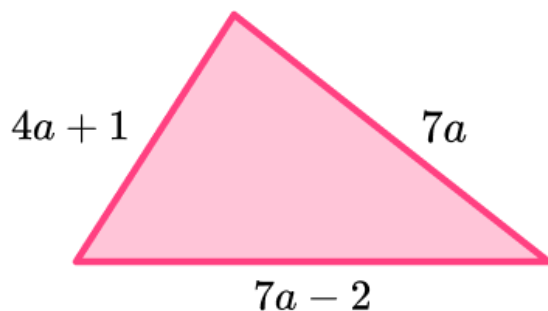
$$19 + \boxed{7} = 26$$

- 4) Using  $n$  as a variable, write an expression that means the same as:

“Eleven added to a number”

$$n + 11$$

- 5) Write an expression for the perimeter of this triangle.



$$18a - 1$$

## Week 8: Day 2

- 1) Giving a reason, decide if 53 will be in this sequence:

3, 8, 13, 18, 23, ...

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- 2) Work out:

a)  $9.3 - 3.8 =$

b)  $1.1 \times 6.1 =$

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- 3) Make this statement true:

$$32 - \square = 23$$

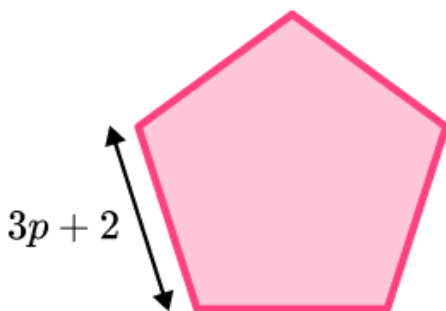
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- 4) Using  $n$  as a variable, write an expression that means the same as:

“One half less than a number”

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- 5) Write an expression for the perimeter of this regular pentagon.



## Week 8: Day 2 Answers

- 1) Giving a reason, decide if 53 will be in this sequence:

3, 8, 13, 18, 23, ... Yes, 53 is 3 more than a multiple of 10

- 2) Work out:

c)  $9.3 - 3.8 = 5.5$

d)  $1.1 \times 6.1 = 6.71$

- 3) Make this statement true:

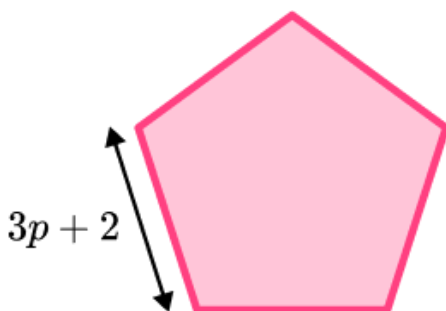
$$32 - \boxed{9} = 23$$

- 4) Using  $n$  as a variable, write an expression that means the same as:

“One half less than a number”

$$n - \frac{1}{2}$$

- 5) Write an expression for the perimeter of this regular pentagon.



$$15p + 10$$

## Week 8: Day 3

- 1) Giving a reason, decide if 102 will be in this sequence:

2, 17, 32, 47, 62, ...

- 2) Work out:

a)  $17.6 + 6.44 =$

b)  $15.3 \div 3 =$

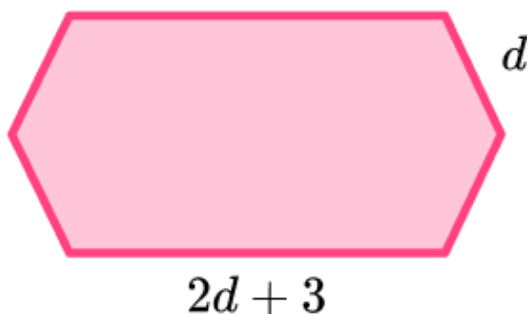
- 3) Make this statement true:

$$17 \times \boxed{\phantom{00}} = 51$$

- 4) Using  $n$  as a variable, write an expression that means the same as:

“Thirty-six divided by a number”

- 5) This hexagon has two lines of symmetry.  
Write an expression for its perimeter.



## Week 8: Day 3 Answers

- 1) Giving a reason, decide if 102 will be in this sequence:

2, 17, 32, 47, 62, ... No, the sequence continues 77, 92, 107, ...

- 2) Work out:

c)  $17.6 + 6.44 = 24.04$

d)  $15.3 \div 3 = 5.1$

- 3) Make this statement true:

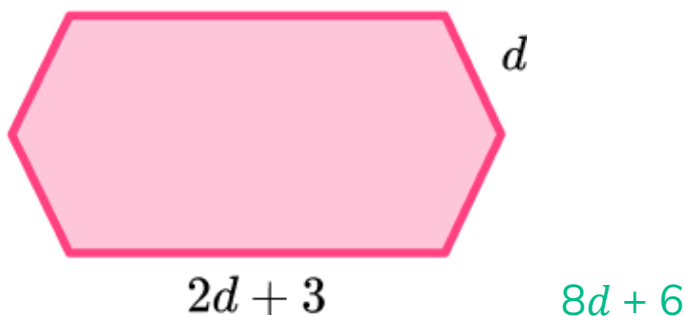
$$17 \times \boxed{3} = 51$$

- 4) Using  $n$  as a variable, write an expression that means the same as:

“Thirty-six divided by a number”

$$\frac{36}{n}$$

- 5) This hexagon has two lines of symmetry.  
Write an expression for its perimeter.



## Week 8: Day 4

- 1) Giving a reason, decide if -19 will be in this sequence:

19, 12, 5, -2, -9, ...

- 2) Work out:

a)  $23.7 - 16.8 =$

b)  $32.8 \div 0.4 =$

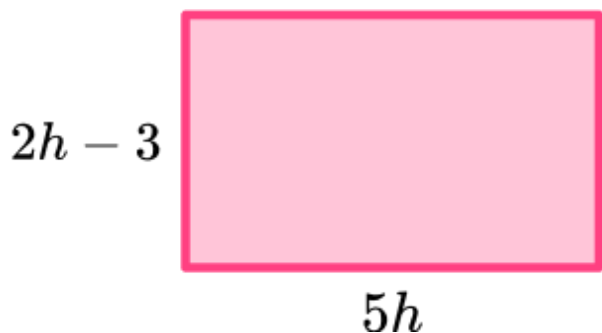
- 3) Make this statement true:

$$50 \div \boxed{\phantom{00}} = 4$$

- 4) Using  $n$  as a variable, write an expression that means the same as:

“Five lots of the sum of six and a number”

- 5) Find an expression for the area of this rectangle.





## Week 8: Day 4 Answers

- 1) Giving a reason, decide if -19 will be in this sequence:

19, 12, 5, -2, -9, ... No, the sequence continues -16, -23

- 2) Work out:

c)  $23.7 - 16.8 = 6.9$

d)  $32.8 \div 0.4 = 82$

- 3) Make this statement true:

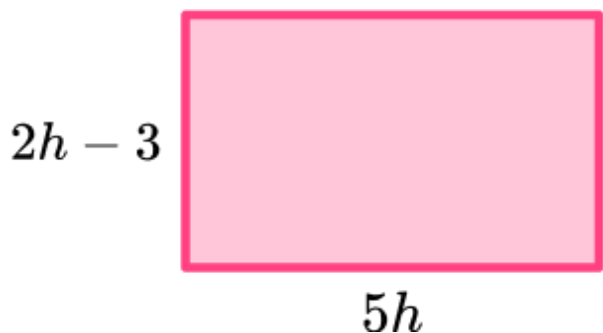
$$50 \div \boxed{12.5} = 4$$

- 4) Using  $n$  as a variable, write an expression that means the same as:

“Five lots of the sum of six and a number”

$$5(6 + n)$$

- 5) Find an expression for the area of this rectangle.



$$5h(2h - 3) \text{ or } 10h^2 - 15h$$

## Week 8: Day 5

- 1) Giving a reason, decide if 162 will be in this sequence:

3, 9, 27, 81, ...

- 2) Work out:

a)  $20.4 + 19.9 =$

b)  $20.2 \times 50 =$

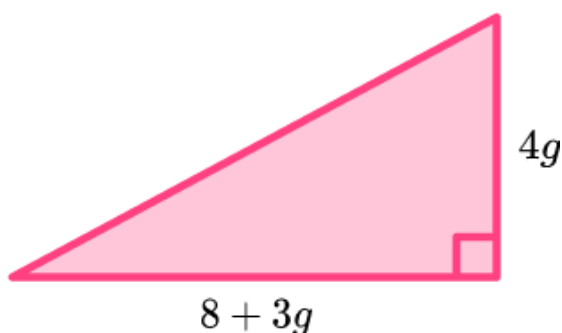
- 3) Make this statement true:

- 13 = 28

- 4) Using  $n$  as a variable, write an expression that means the same as:

“A number added eight, all divided by three”

- 5) Find an expression for the area of this right-angled triangle.



## Week 8: Day 5 Answers

- 1) Giving a reason, decide if 162 will be in this sequence:

3, 9, 27, 81, ... No, the rule is multiply by 3.  $162 = 2 \times 81$

- 2) Work out:

c)  $20.4 + 19.9 = 40.3$

d)  $20.2 \times 50 = 1010$

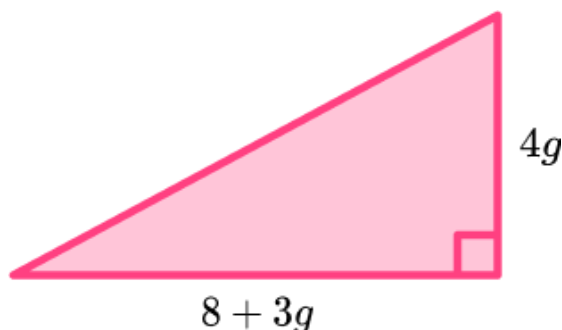
- 3) Make this statement true:

41 - 13 = 28

- 4) Using  $n$  as a variable, write an expression that means the same as:  
“A number added eight, all divided by three”

$$\frac{8+n}{3}$$

- 5) Find an expression for the area of this right-angled triangle.



$$2g(8 + 3g) \text{ or } 16g + 6g^2$$

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