

Week 10

This week in a nutshell:

Once again, it is recommended that students attempt this week's tasks without the aid of a calculator. Instead of calculator usage, consider encouraging the use of various written methods, including the annotation of diagrams with respect to question 4.

Question 1: Geometric progressions

Question 2: Written calculations

Question 3: Rewriting ratio

Question 4: Finding missing angles

Question 5: Writing algebraic 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: **Geometric progressions**

- Why do you think it's called a geometric progression?

Question 2: **Written calculations**

- When should you reach for a calculator? (Be honest)

Question 3: **Rewriting ratio**

- Why are ratios written in different ways?

Question 4: **Finding missing angles**

- Describe the process of finding missing angles?
- How are triangles helpful in finding missing angles in other shapes?

Question 5: **Writing algebraic expressions**

- What is important when constructing an expression?

Week 10: Day 1

- 1) Find the missing terms in this geometric progression:

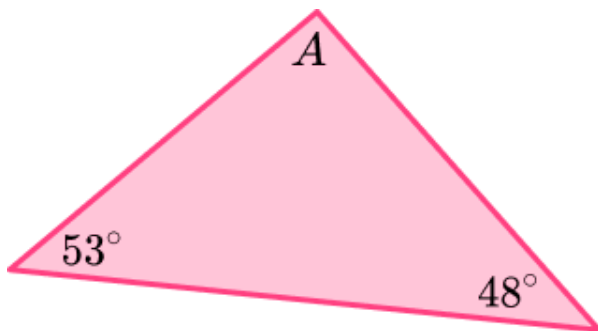
1, 2, 4, 8, __, __, ...

- 2) Work out

$$28 \times 17$$

- 3) Write the ratio 2: 15 in the form 1: n
-

- 4) Work out the size of the angle marked A .



- 5) Using n as the variable, write an algebraic expression that means the same as:

“Two lots of a number plus thirteen”

Week 10: Day 1 Answers

- 1) Find the missing terms in this geometric progression:

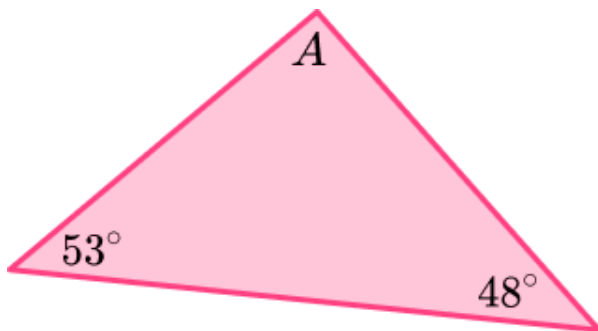
1, 2, 4, 8, 16, 32, ...

- 2) Work out

$$28 \times 17 = 476$$

- 3) Write the ratio 2: 15 in the form 1: n 1 : 7.5

- 4) Work out the size of the angle marked A . 79°



- 5) Using n as the variable, write an algebraic expression that means the same as:

“Two lots of a number plus thirteen”

$$2n + 13$$

Week 10: Day 2

- 1) Find the missing terms in this geometric progression:

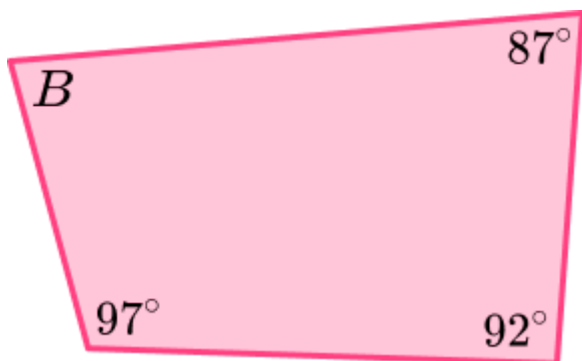
3, 6, __, __, 48, 96, ...

- 2) Using a written method, work out

$$684 \div 19$$

- 3) Write the ratio 4: 25 in the form $1:n$

- 4) Work out the size of the angle marked B .



- 5) Using n as the variable, write an algebraic expression that means the same as:

“Five subtracted from the product of a number and three”

Week 10: Day 2 Answers

- 1) Find the missing terms in this geometric progression:

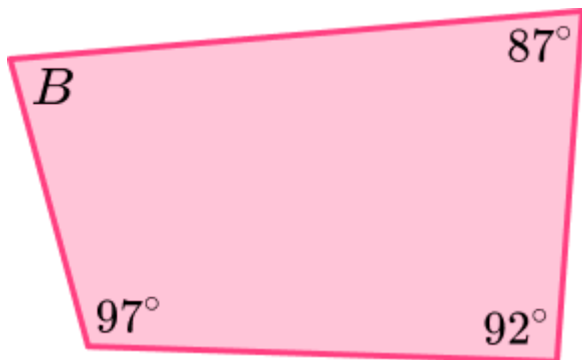
3, 6, 12, 24, 48, 96, ...

- 2) Using a written method, work out

$$684 \div 19 = 36$$

- 3) Write the ratio 4: 25 in the form 1: n $1 : 6.25$

- 4) Work out the size of the angle marked B . 84°



- 5) Using n as the variable, write an algebraic expression that means the same as:

“Five subtracted from the product of a number and three”

$$3n - 5$$

Week 10: Day 3

- 1) Find the missing terms in this geometric progression:

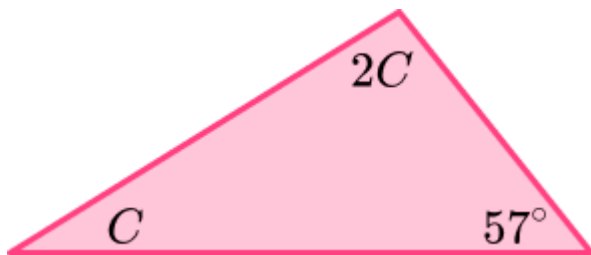
1, __, __, 1000, 10000, ...

- 2) Using a written method, work out

$$235 - 387 + 266$$

- 3) Write the ratio 8: 100 in the form 1: n
-

- 4) Work out the size of the angle marked C .



- 5) Using n as the variable, write an algebraic expression that means the same as:

“Four divided by the sum of five and a number”

Week 10: Day 3 Answers

- 1) Find the missing terms in this geometric progression:

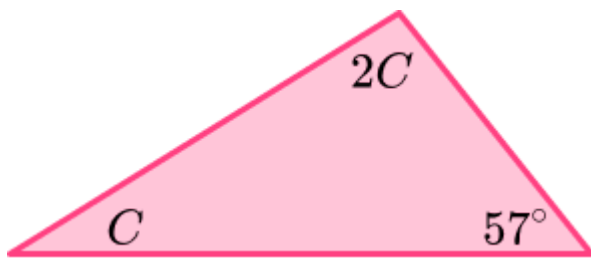
1, 10, 100, 1000, 10000, ...

- 2) Using a written method, work out

$$235 - 387 + 266 = 114$$

- 3) Write the ratio 8: 100 in the form 1: n $1 : 12.5$

- 4) Work out the size of the angle marked C . 41°



- 5) Using n as the variable, write an algebraic expression that means the same as:

“Four divided by the sum of five and a number”

$$\frac{4}{5+n}$$

Week 10: Day 4

- 1) Find the missing terms in this geometric progression:

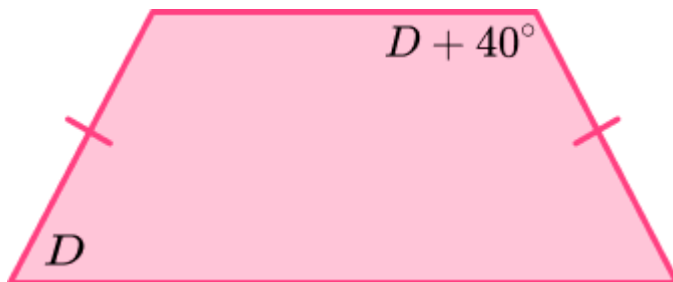
200, 100, __, 25, __, ...

- 2) Using a written method, work out

$6007 - 2338$

- 3) Write the ratio $\frac{1}{2} : \frac{3}{4}$ in the form $1:n$, where n is a decimal number.

- 4) Given that the shape below is an isosceles trapezium, work out the size of the angle marked D .



- 5) Using n as the variable, write an algebraic expression that means the same as:

“A number added to five, and then squared”

Week 10: Day 4 Answers

- 1) Find the missing terms in this geometric progression:

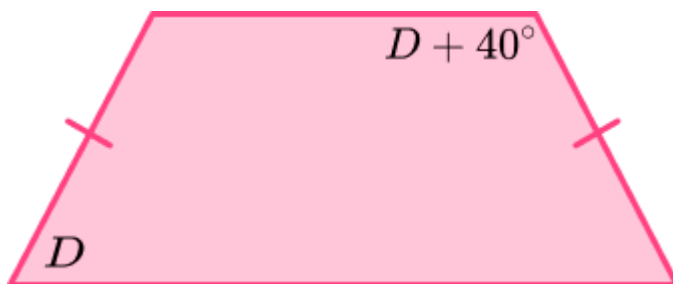
200, 100, 50, 25, 12.5, ...

- 2) Using a written method, work out

$$6007 - 2338 = 3669$$

- 3) Write the ratio $\frac{1}{2} : \frac{3}{4}$ in the form $1:n$, where n is a decimal number. 1 : 1.5

- 4) Given that the shape below is an isosceles trapezium, work out the size of the angle marked D . 70°



- 5) Using n as the variable, write an algebraic expression that means the same as:

“A number added to five, and then squared”

$$(5 + n)^2$$

Week 10: Day 5

- 1) Find the missing terms in this geometric progression:

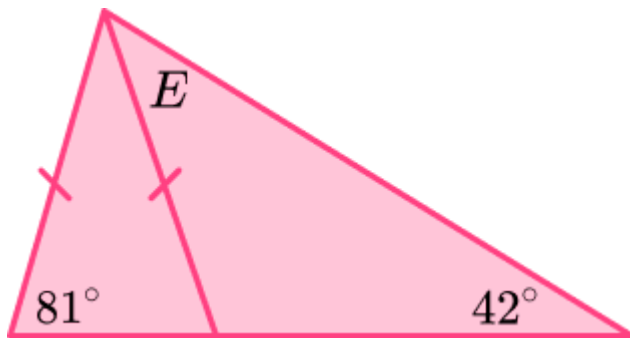
10, 5, ____, ____, 0.625, ...

- 2) Using a written method, work out

$$148 \times 23$$

- 3) Write the ratio 3: 20 in the form $1:n$, with n rounded to two decimal places.
-

- 4) Work out the size of the angle marked E .



- 5) Using n as the variable, write an algebraic expression that means the same as:

“A number that has been squared, subtracted from seven”

Week 10: Day 5 Answers

- 1) Find the missing terms in this geometric progression:

10, 5, 2.5, 1.25, 0.625, ...

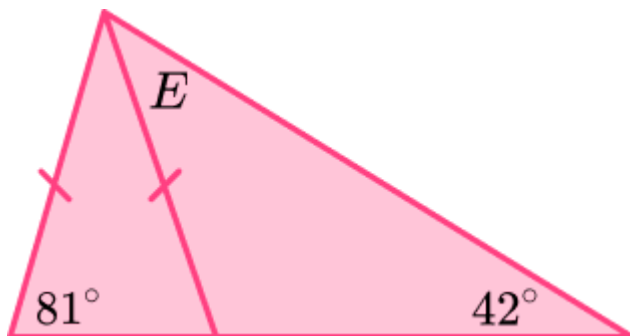
- 2) Using a written method, work out

$$148 \times 23 = 3404$$

- 3) Write the ratio 3: 20 in the form 1: n , with n rounded to two decimal places.

1 : 6.67

- 4) Work out the size of the angle marked E . 39°



- 5) Using n as the variable, write an algebraic expression that means the same as:

“A number that has been squared, subtracted from seven”

$$7 - n^2$$

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