

## Week 4

### This week in a nutshell:

Questions 1-4 are familiar ground for the students. Question 5 looks at Pythagoras' Theorem and concentrates on calculating the hypotenuse. The questions involve Pythagorean triples so there is discretion available as to whether calculators should be used every day.

**Question 1:** A number as a percentage of another number

**Question 2:** Descriptive statistics

**Question 3:** Working with negative numbers

**Question 4:** Angle facts

**Question 5:** Pythagoras' Theorem (finding the hypotenuse)

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: **A number as a percentage of another number**

- What is the purpose of using percentages?

Question 2: **Descriptive statistics**

- Apart from averages and the range, how else could we describe a dataset?

Question 3: **Working with negative numbers**

- Where and how are negative numbers used in the "real world"?

Question 4: **Angle facts**

- Can angle problems be solved without facts?

Question 5: **Pythagoras' Theorem (finding the hypotenuse)**

- When can Pythagoras' Theorem be used?

## Week 4: Day 1

- 1) Express 45 out of 225 as a percentage.

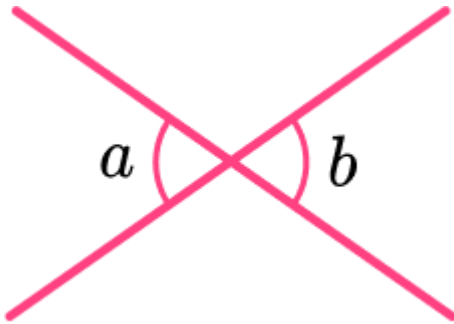
- 2) Find the median of this data:

17, 9, 12, 14, 11, 8, 9

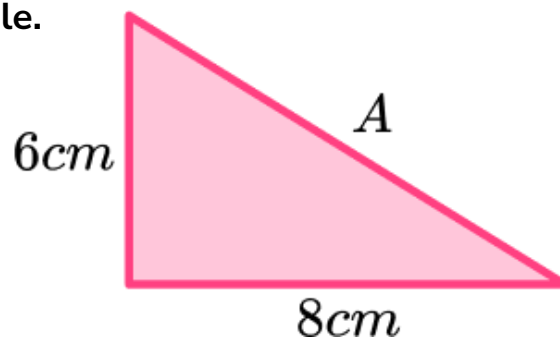
- 3) Calculate:

$$-4 \times 6 =$$

- 4) State the angle fact that justifies the statement  $a = b$ .



- 5) Use Pythagoras' Theorem to determine the length of side  $A$  in this right-angled triangle.



## Week 4: Day 1 Answers

- 1) Express 45 out of 225 as a percentage.

20%

- 2) Find the median of this data:

17, 9, 12, 14, 11, 8, 9

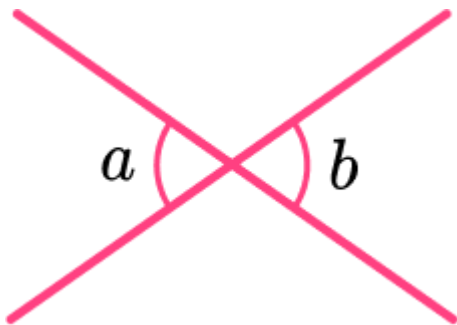
11

- 3) Calculate:

$$-4 \times 6 = -24$$

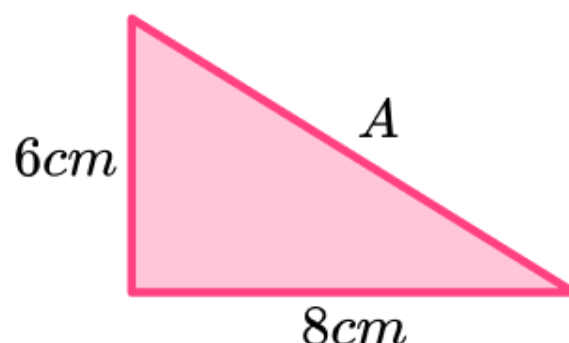
- 4) State the angle fact that justifies the statement  $a = b$ .

Vertically opposite angles are equal



- 5) Use Pythagoras' Theorem to determine the length of side  $A$  in this right-angled triangle.

10cm



## Week 4: Day 2

- 1) Express 27 out of 30 as a percentage.

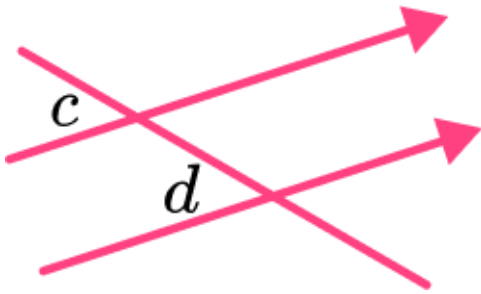
- 2) Find the mode of this data:

19, 23, 29, 21, 24, 23, 27, 26

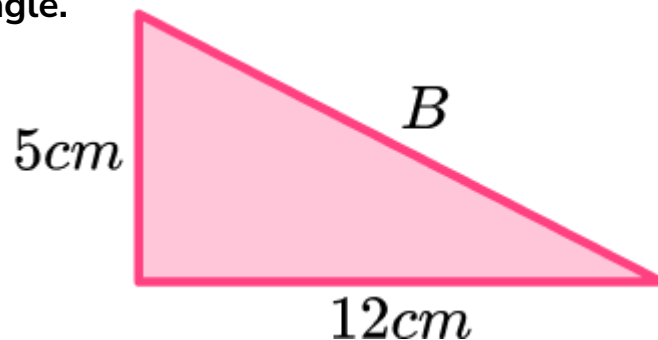
- 3) Calculate:

$$11 - (-7) =$$

- 4) State the angle fact that justifies the statement  $c = d$ .



- 5) Use Pythagoras' Theorem to determine the length of side  $B$  in this right-angled triangle.



## Week 4: Day 2 Answers

- 1) Express 27 out of 30 as a percentage.

90%

- 2) Find the mode of this data:

19, 23, 29, 21, 24, 23, 27, 26

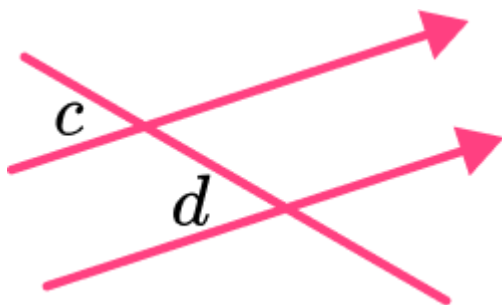
23

- 3) Calculate:

$$11 - (-7) = 18$$

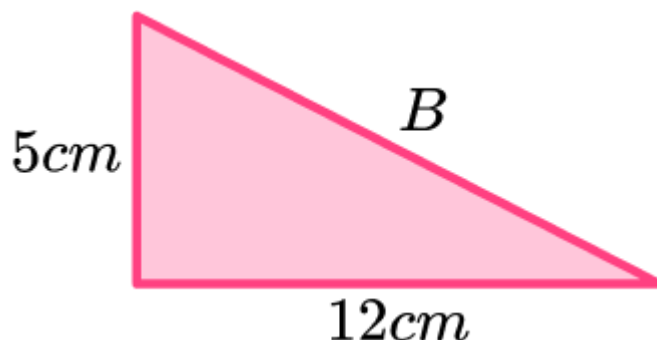
- 4) State the angle fact that justifies the statement  $c = d$ .

Corresponding angles are equal



- 5) Use Pythagoras' Theorem to determine the length of side  $B$  in this right-angled triangle.

13cm



## Week 4: Day 3

- 1) Express 20 out of 64 as a percentage.

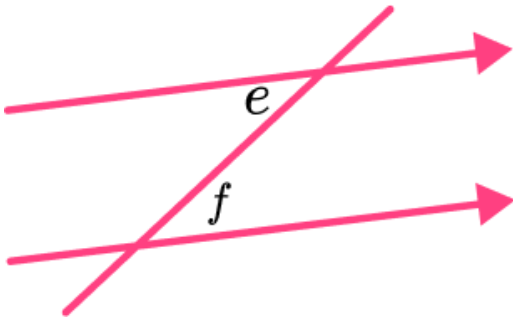
- 2) Find the range of this data:

45, 49, 32, 28, 54, 38, 39

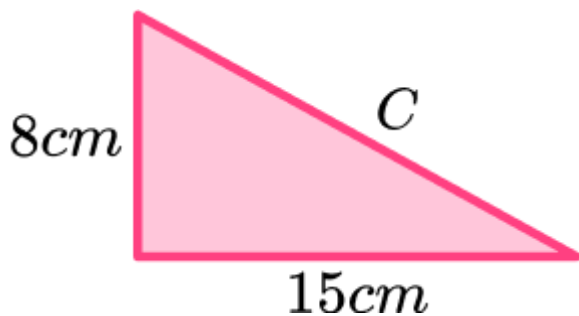
- 3) Calculate:

$$-13 + (-8) =$$

- 4) State the angle fact that justifies the statement  $e = f$ .



- 5) Use Pythagoras' Theorem to determine the length of side  $C$  in this right-angled triangle.



## Week 4: Day 3 Answers

- 1) Express 20 out of 64 as a percentage.

31.25%

- 2) Find the range of this data:

45, 49, 32, 28, 54, 38, 39

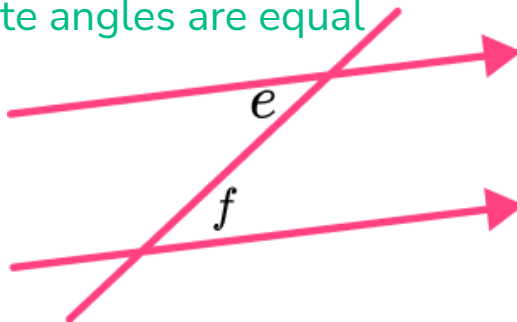
26

- 3) Calculate:

$$-13 + (-8) = -21$$

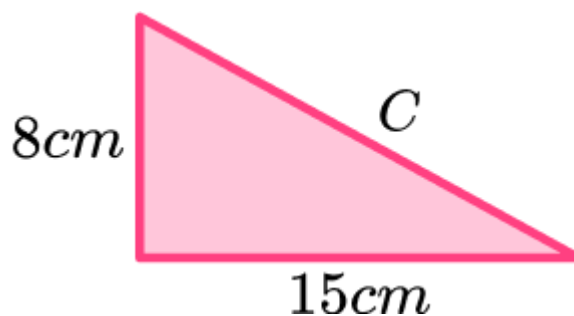
- 4) State the angle fact that justifies the statement  $e = f$ .

Alternate angles are equal



- 5) Use Pythagoras' Theorem to determine the length of side  $C$  in this right-angled triangle.

17cm



## Week 4: Day 4

- 1) Express 49 out of 56 as a percentage.

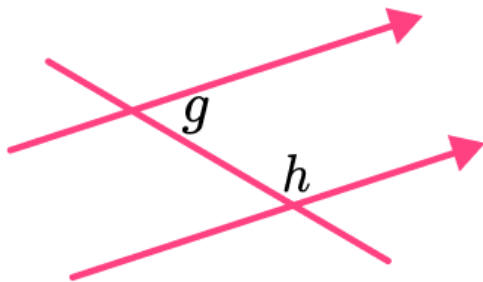
- 2) Find the mean of this data:

8, 9, 5, 14, 1, 3, 9

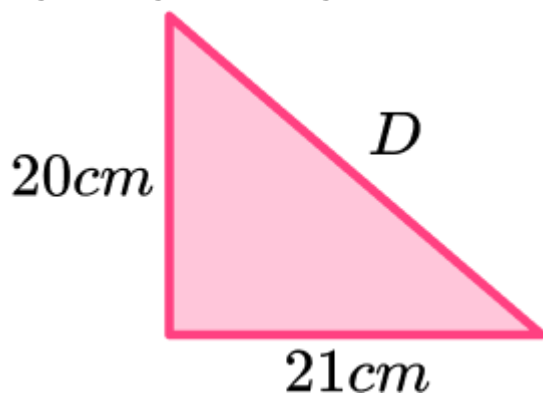
- 3) Calculate:

$$49 \div -7 =$$

- 4) State the angle fact that justifies the statement  $g + h = 180^\circ$ .



- 5) Use Pythagoras' Theorem to determine the length of side  $D$  in this right-angled triangle.





## Week 4: Day 4 Answers

- 1) Express 49 out of 56 as a percentage.

87.5%

- 2) Find the mean of this data:

8, 9, 5, 14, 1, 3, 9

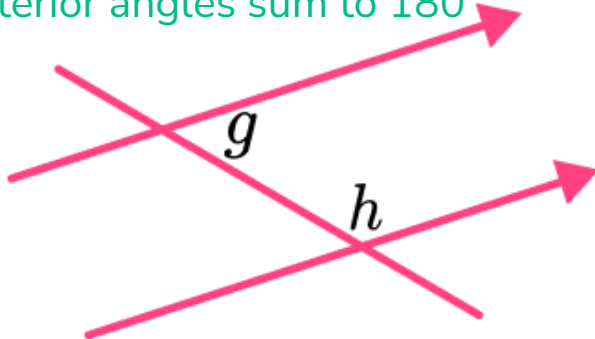
7

- 3) Calculate:

$$49 \div -7 = -7$$

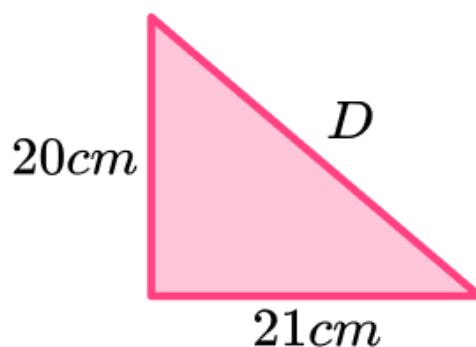
- 4) State the angle fact that justifies the statement  $g + h = 180^\circ$ .

Co-interior angles sum to  $180^\circ$



- 5) Use Pythagoras' Theorem to determine the length of side  $D$  in this right-angled triangle.

29cm



## Week 4: Day 5

- 1) Express 16 out of 40 as a percentage.

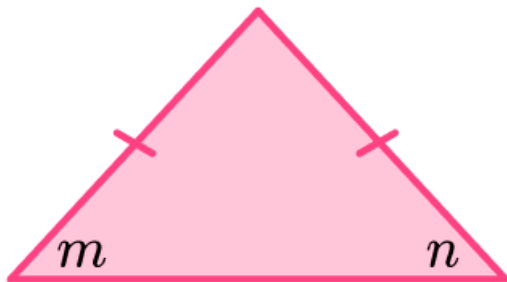
- 2) Find the median of this data:

67, 68, 72, 59, 60, 68

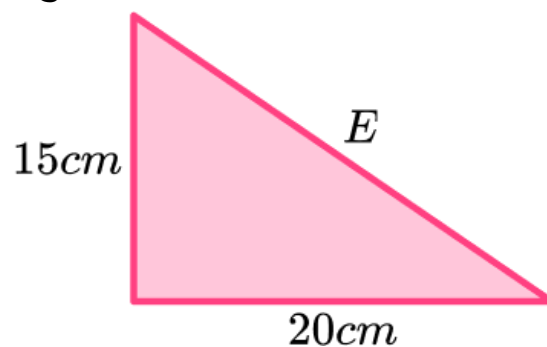
- 3) Calculate:

$$8 \times -6 \div -3 =$$

- 4) State the angle fact that justifies the statement  $m = n$ .



- 5) Use Pythagoras' Theorem to determine the length of side  $E$  in this right-angled triangle.



## Week 4: Day 5 Answers

- 1) Express 16 out of 40 as a percentage.

40%

- 2) Find the median of this data:

67, 68, 72, 59, 60, 68

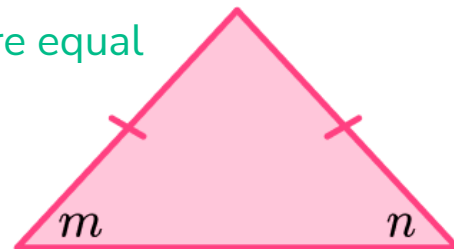
67.5

- 3) Calculate:

$$8 \times -6 \div -3 = 16$$

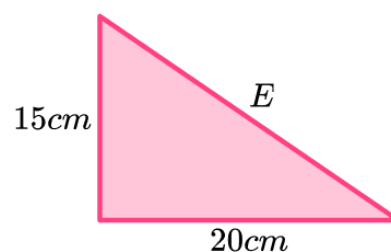
- 4) State the angle fact that justifies the statement  $m = n$ .

Base angles in an isosceles triangle are equal



- 5) Use Pythagoras' Theorem to determine the length of side  $E$  in this right-angled triangle.

25cm



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