

Week 10

This week in a nutshell:

Question 5, again, looks at one aspect of trigonometry, and a calculator (set to degrees) will be needed. Answers have been rounded to a suitable degree of accuracy, which you are welcome to adjust depending on your students' requirements. Students may want a warning for question 4 that the scales of the axes are not necessarily the same, this is intentional.

Question 1: Integer calculations

Question 2: Lowest common multiple

Question 3: Rearranging formulae

Question 4: Calculating gradients

Question 5: Using trigonometry to find the length of 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: **Integer calculations**

- Are integers just a special case of fractions?

Question 2: **Lowest common multiple**

- Why do we not consider the highest common multiple?

Question 3: **Rearranging formulae**

- Is it always possible to rearrange a formula?

Question 4: **Calculating gradients**

- What features of a graph need careful consideration when calculating the gradient?

Question 5: **Using trigonometry to find the length of the hypotenuse**

- Is the hypotenuse always the longest side? How do you know?

Week 10: Day 1

- 1) Calculate:

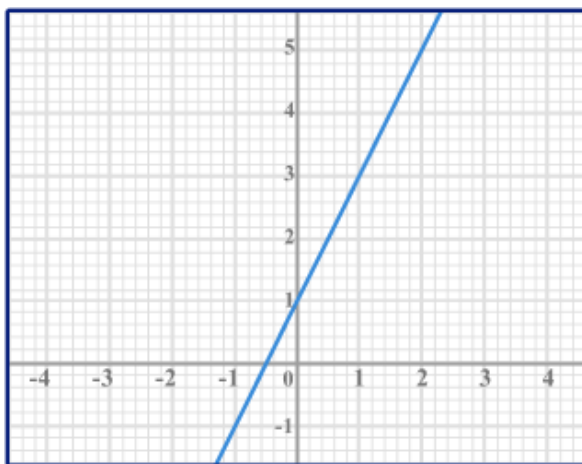
$$72 \times 19 =$$

- 2) Find the lowest common multiple (LCM) of 6 and 9.

- 3) Rearrange the formula to make A the subject:

$$P = \frac{F}{A}$$

- 4) Work out the gradient of the line.



- 5) Use trigonometry to find the length of the hypotenuse.



Week 10: Day 1 Answers

- 1) Calculate:

$$72 \times 19 = 1368$$

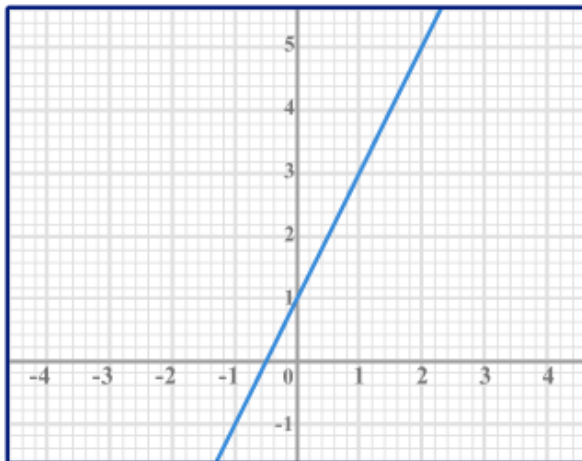
- 2) Find the lowest common multiple (LCM) of 6 and 9. 18

- 3) Rearrange the formula to make A the subject:

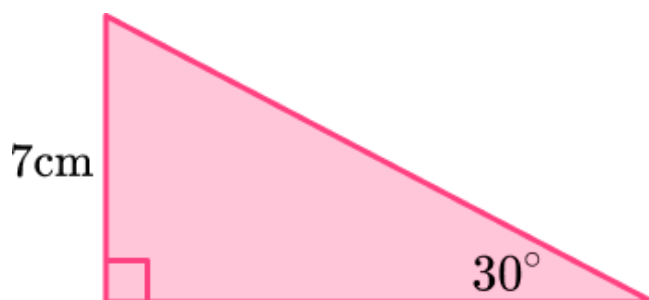
$$P = \frac{F}{A} \qquad A = \frac{F}{P}$$

- 4) Work out the gradient of the line.

Gradient = 2



- 5) Use trigonometry to find the length of the hypotenuse. 14cm



Week 10: Day 2

- 1) Calculate:

$$643 - 197 =$$

- 2) Find the lowest common multiple (LCM) of 8 and 14.

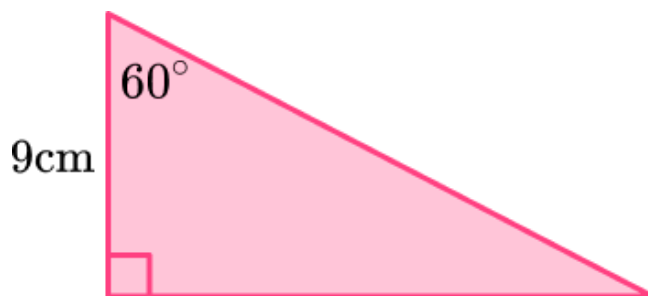
- 3) Rearrange the formula to make R the subject:

$$IR = V$$

- 4) Work out the gradient of the line.



- 5) Use trigonometry to find the length of the hypotenuse.



Week 10: Day 2 Answers

- 1) Calculate:

$$643 - 197 = 446$$

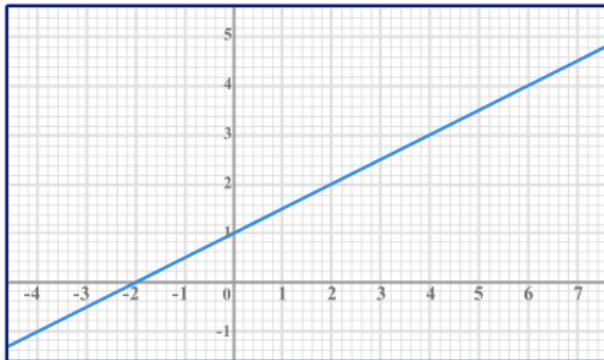
- 2) Find the lowest common multiple (LCM) of 8 and 14. 56

- 3) Rearrange the formula to make R the subject:

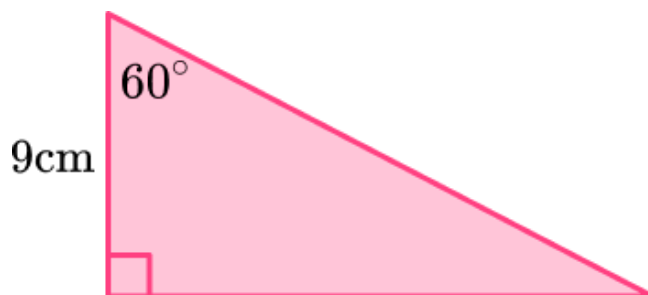
$$IR = V \qquad R = \frac{V}{I}$$

- 4) Work out the gradient of the line.

$$\text{Gradient} = \frac{1}{2}$$



- 5) Use trigonometry to find the length of the hypotenuse. 18cm



Week 10: Day 3

- 1) Calculate:

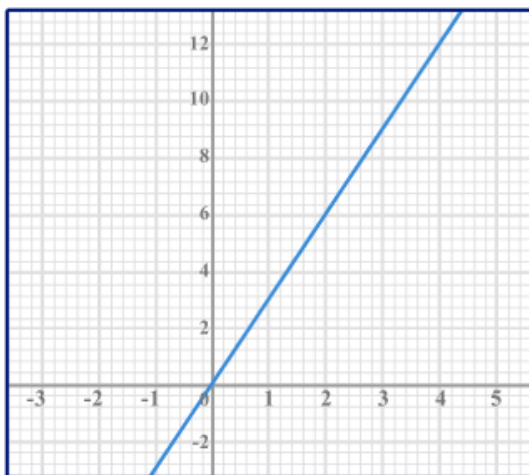
$$531 \div 9 =$$

- 2) Find the lowest common multiple (LCM) of 10 and 15.

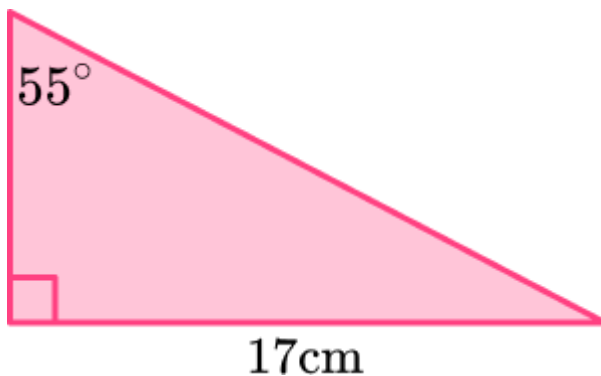
- 3) Rearrange the formula to make P the subject:

$$C = P + PT$$

- 4) Work out the gradient of the line.



- 5) Use trigonometry to find the length of the hypotenuse.



Week 10: Day 3 Answers

- 1) Calculate:

$$531 \div 9 = 59$$

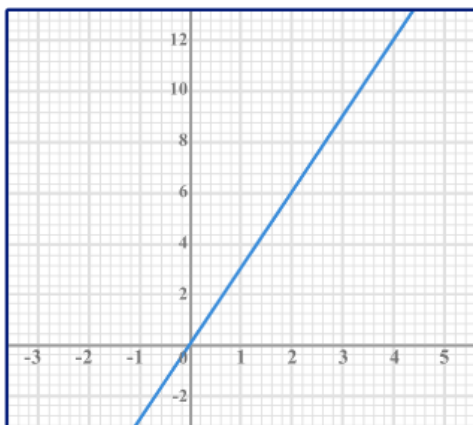
- 2) Find the lowest common multiple (LCM) of 10 and 15. 30

- 3) Rearrange the formula to make P the subject:

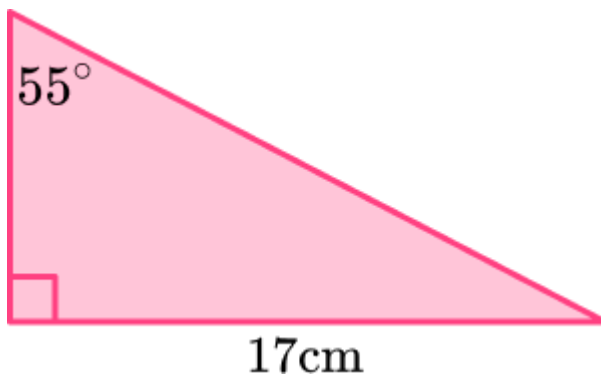
$$C = P + PT \quad P = \frac{C}{1+t}$$

- 4) Work out the gradient of the line.

Gradient = 3



- 5) Use trigonometry to find the length of the hypotenuse. 20.8cm (1dp)



Week 10: Day 4

1) Calculate:

$$47 + 183 + 22 =$$

2) Find the lowest common multiple (LCM) of 4, 6 and 9.

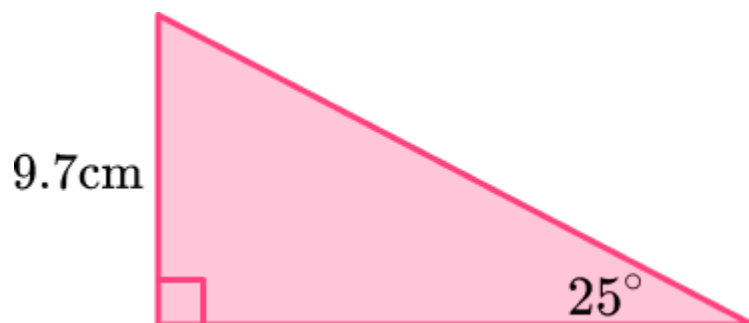
3) Rearrange the formula to make a the subject:

$$p = m(g + a)$$

4) Work out the gradient of the line.



5) Use trigonometry to find the length of the hypotenuse.



Week 10: Day 4 Answers

1) Calculate:

$$47 + 183 + 22 = 252$$

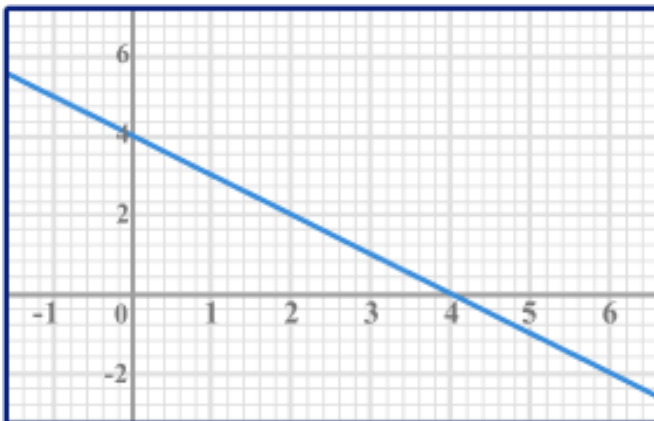
2) Find the lowest common multiple (LCM) of 4, 6 and 9. 36

3) Rearrange the formula to make a the subject:

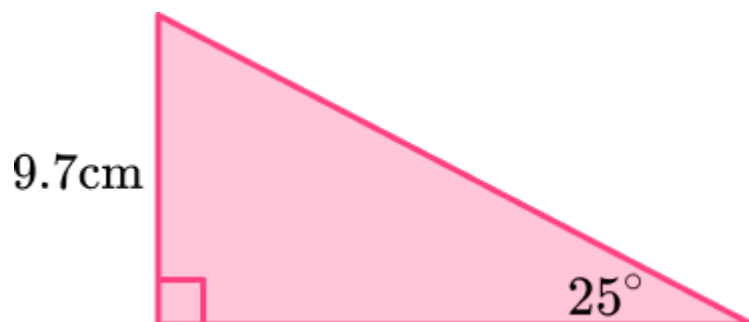
$$p = m(g + a) \quad a = \frac{p}{m} - g$$

4) Work out the gradient of the line.

Gradient = -1



5) Use trigonometry to find the length of the hypotenuse. 23.0cm (1dp)



Week 10: Day 5

- 1) Calculate:

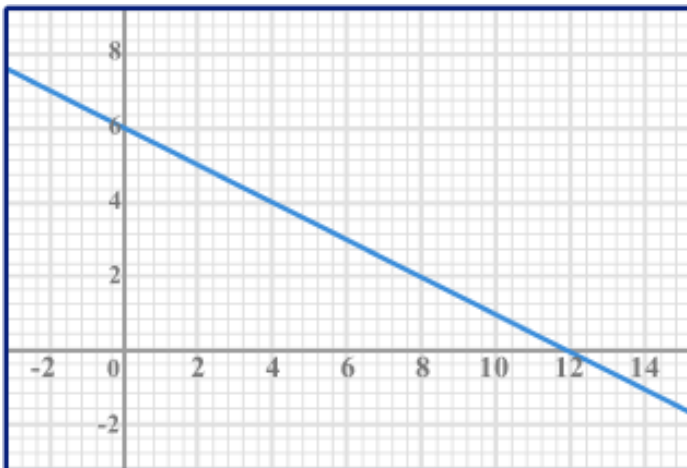
$$504 \div 14 =$$

- 2) Find the lowest common multiple (LCM) of 3, 4 and 10.

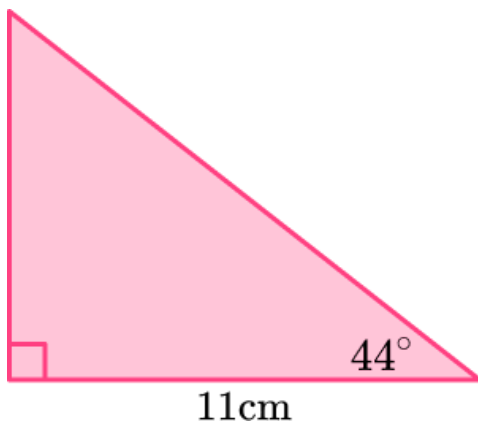
- 3) Rearrange the formula to make u the subject:

$$s = ut + a$$

- 4) Work out the gradient of the line.



- 5) Use trigonometry to find the length of the hypotenuse.



Week 10: Day 5 Answers

1) Calculate:

$$504 \div 14 = 36$$

2) Find the lowest common multiple (LCM) of 3, 4 and 10. 60

3) Rearrange the formula to make u the subject:

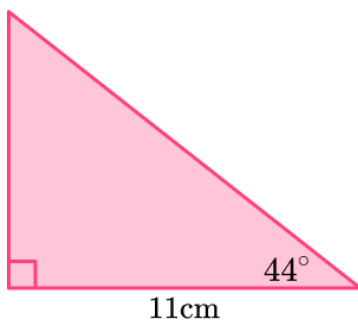
$$s = ut + a \qquad u = \frac{s-a}{t}$$

4) Work out the gradient of the line.

$$\text{Gradient} = -\frac{1}{2}$$



5) Use trigonometry to find the length of the hypotenuse. 15.3cm (1dp)



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