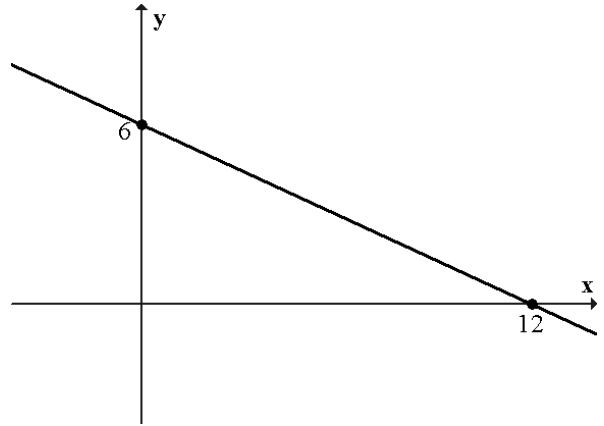


Credit Mathematics – Homework H

Non-calculator section:

- Express as a single fraction $\frac{3}{5} \div (1\frac{1}{2} - \frac{4}{5})$
- (a) Solve the inequation $4 - (x - 2) > 2x + 5$
(b) Expand the brackets and simplify $(x - 3)(2x^2 + 6x - 1)$

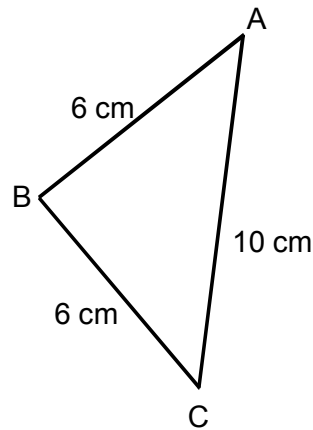
- Find the equation of the line shown opposite



- Simplify $\frac{2x^2 - 6x}{2x^2 - 5x - 3}$

- The diagram opposite shows triangle ABC.
For this triangle show that

$$\cos ABC = -\frac{7}{18}$$



- (a) Expand the brackets $2\sqrt{3}(\sqrt{3} - \sqrt{15})$

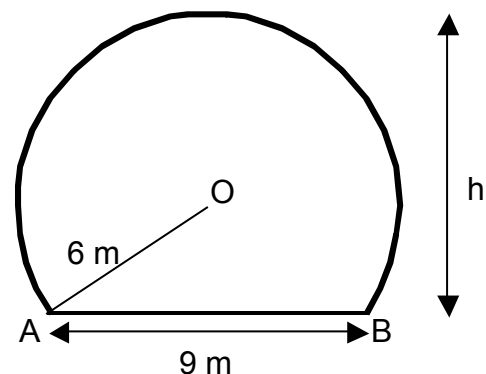
- (b) Simplify $\frac{3a^{4/5} \times 6a^{-4/5}}{9a^{-2}}$

Calculator section:

- Michael invests £3500 in the shares of an oil company. He expects the value of the shares to increase at a rate of 4.5% per annum. If he sells his shares in 5 years time, how much will they be worth?

- The diagram opposite shows a tunnel, circular in shape with a horizontal floor.
The width, AB, of the floor is 9 metres and the radius, OA, of the circle is 6 metres.

Calculate, h, the height of the tunnel.



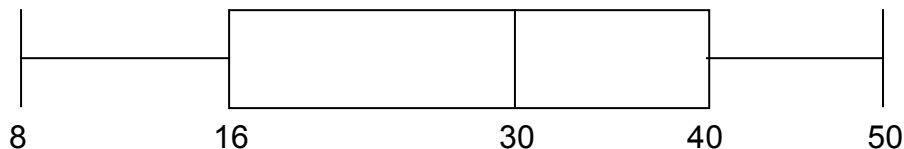
9. A triangle PQR has area 24 cm^2 .

Given $PQ = 9.5 \text{ cm}$ and $QR = 8 \text{ cm}$, find two possible sizes for angle PQR.

10. Class 4A sat a maths test. Their marks were

15 18 20 20 20 22 24 25 27 30 36
40 41 41 42 43 44 45 45 47 48 48

- (a) Write down the median mark
 (b) Show the information in a boxplot.
 (c) The 22 pupils in class B sat the same test.
 The boxplot shows the distribution of their marks.



Make two valid comparisons between classes 4A and 4B.

11. A petrol station sells two types of fuel – unleaded and diesel.

- (a) Unleaded petrol costs 90 pence per litre and diesel costs 95 pence per litre. One particular week the petrol station sells £36 500 worth of fuel.

Using x to represent a litre of unleaded fuel and y to represent a litre of diesel, write down an equation involving x and y .

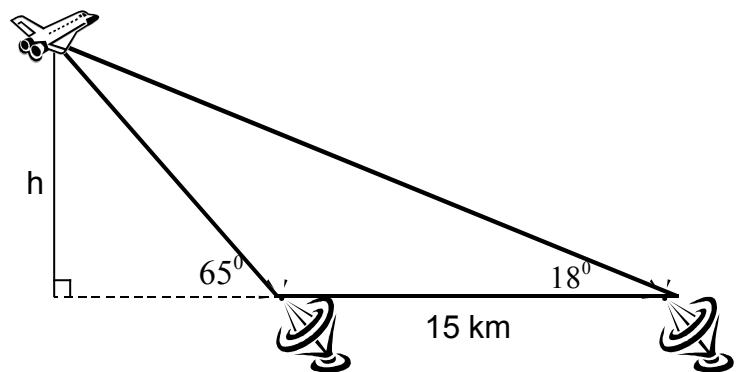


- (b) In that week the petrol station sold a total of 40 000 litres of fuel.
 Write down another equation in x and y .

- (c) Calculate how many litres of unleaded fuel were sold that week.

12. Two tracking stations, 15 km apart, are tracking a space shuttle, as shown. The angle of elevation from one station to the shuttle is 65° and from the other the angle of elevation is 18° .

Calculate, h , the height the shuttle is above the stations.



13. The diagram shows part of the graph of $y = x^2 - 6x - 16$.

- (a) Write down the coordinates of A.
 (b) Find the roots of the parabola.
 (c) Find the coordinates of the minimum turning point of $y = x^2 - 6x - 16$.

