

HOME EXERCISE 16

Set out carefully all appropriate working.

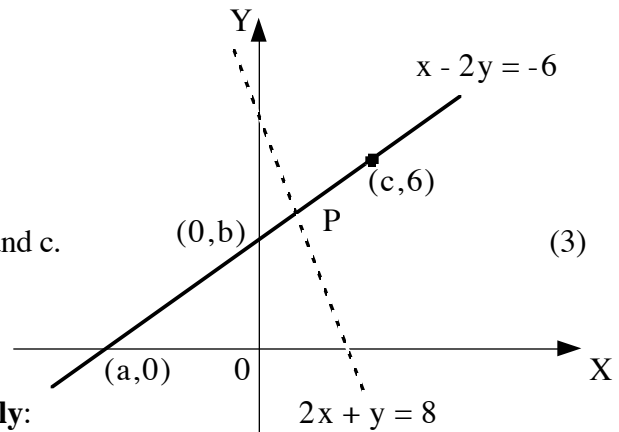
Do **not** use a calculator in questions 1 or 2.

Use a calculator in questions 3 and 4.

1. The graph shown has equation $x - 2y = -6$.

(a) Use the equation to find the values of a, b and c. (3)

(b) A second line with equation $2x + y = 8$ is drawn. It meets the first line at point P.



Solve the system of equations **algebraically**:

$$x - 2y = -6$$

$$2x + y = 8$$

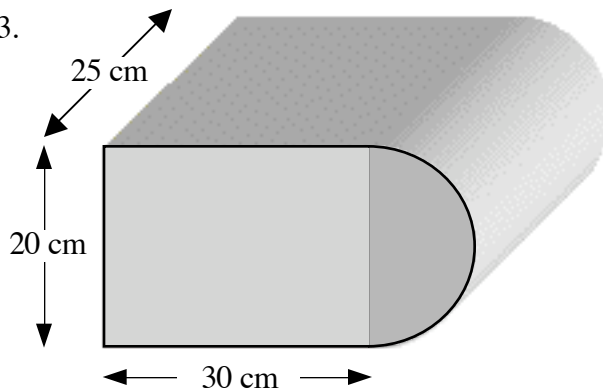
to find the co-ordinates of point P. (3)

2. Evaluate:

$$2\frac{3}{4} \square \frac{5}{8} \square \frac{7}{10}$$

(3)

3.



The diagram shows a prism with a depth of 25 centimetres as shown.

(a) The front face shows a shape formed from a rectangle and a semicircle.

Calculate the area of the shape. (3)

(b) Calculate the volume of the prism. (2)

4. A satellite is in orbit around the earth.

It travels around the earth in a circle at a speed of $7.624 \square 10^3$ metres per **second**.

The radius of the orbit is $6.915 \square 10^6$ metres.

Calculate: (a) the circumference of the orbit. (2)

(b) the time, in **minutes**, for the satellite to complete one orbit. (4)

Write your answer correct to **3 significant figures**.

Total 20 marks