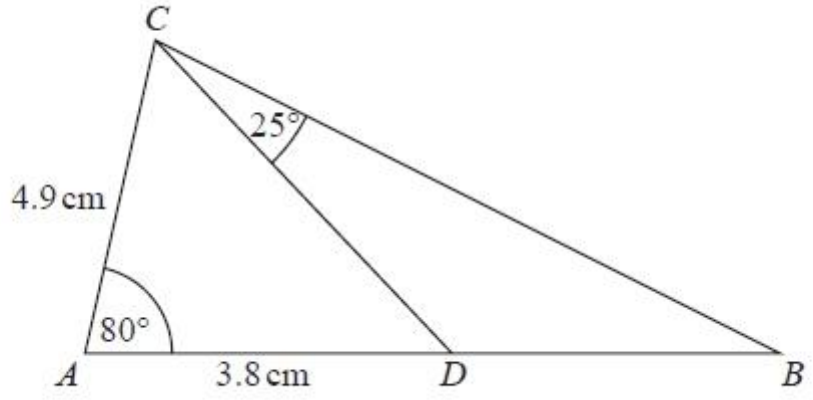
# GCSE Mathematics (Higher)

Name:

## Revision Booklet 1

## Questions

**Q1.**




*ABC* is a triangle.
*D* is a point on *AB*.

Work out the area of triangle *BCD*.
Give your answer correct to 3 significant figures.

..... $cm^2$

**(Total for question = 5 marks)**

**Q2.**

The diagram represents a metal frame.

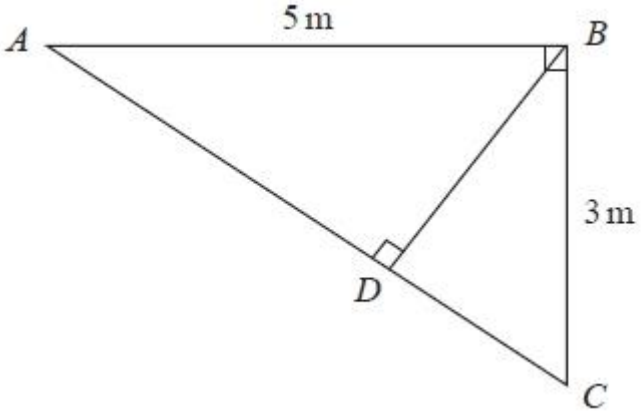



Diagram **NOT** accurately drawn

The frame is made from four metal bars, *AB*, *AC*, *BC* and *BD*.

Angle *ABC* = angle *ADB* = 90°
*AB* = 5 m
*BC* = 3 m

Work out the total length of the four metal bars of the frame.
Give your answer correct to 3 significant figures.

..... m

**(Total for question = 5 marks)**

**Q3.**

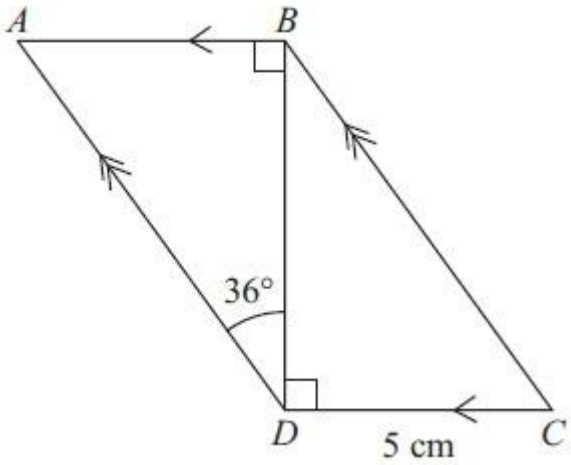



Diagram **NOT** accurately drawn

*ABCD* is a parallelogram.

*DC* = 5 cm
Angle *ADB* = 36°

Calculate the length of *AD*.
Give your answer correct to 3 significant figures.

.....

**(Total for Question is 4 marks)**

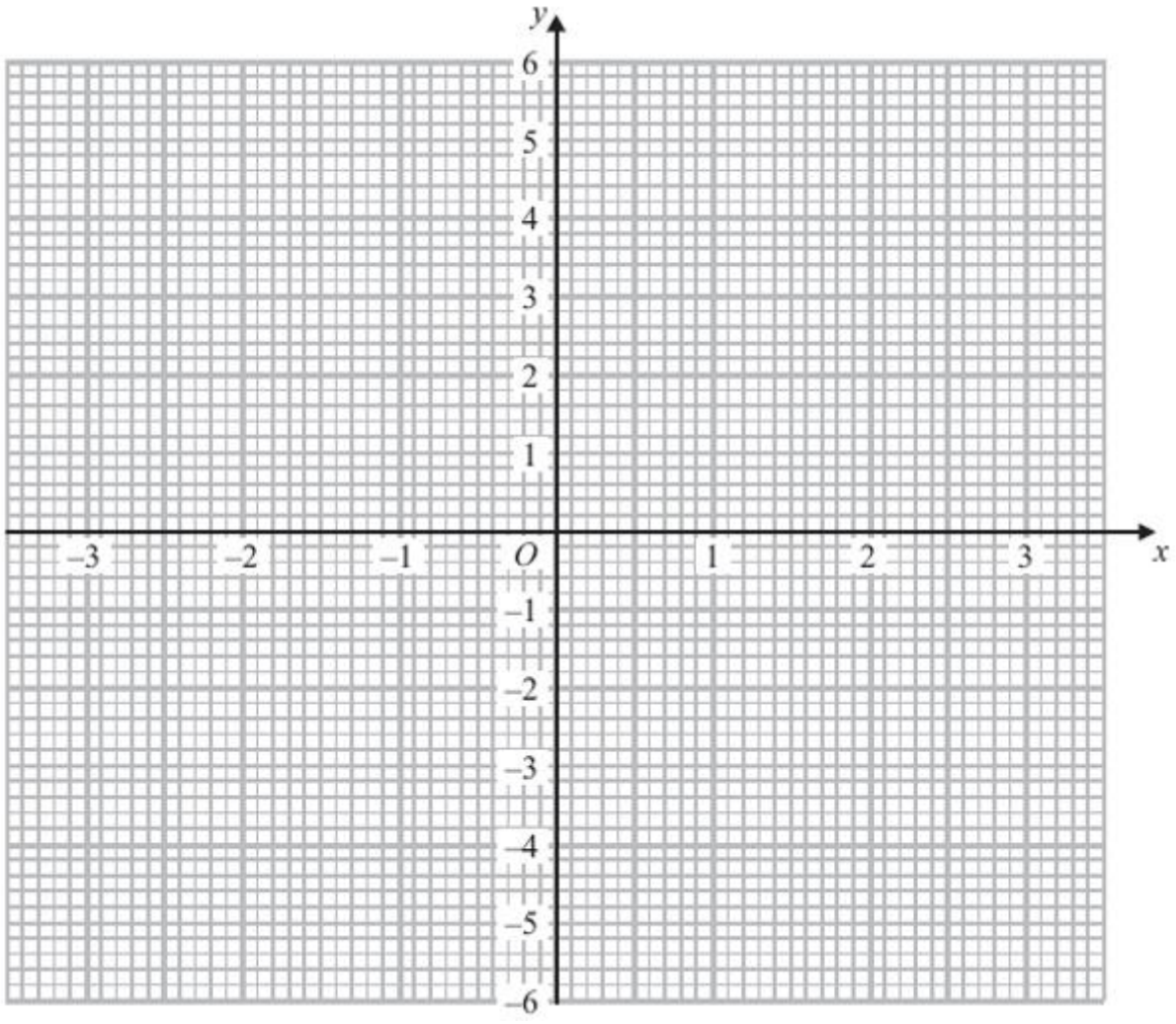
**Q4.**

(a) Complete the table of values for $y = x^2 - 4$

| x | −3 | −2 | −1 | 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|
| y | | 0 | −3 | | | 0 | 5 |

**(2)**

(b) On the grid, draw the graph of $y = x^2 - 4$ for $x = -3$ to $x = 3$




**(2)**

**(Total for Question is 4 mark)**

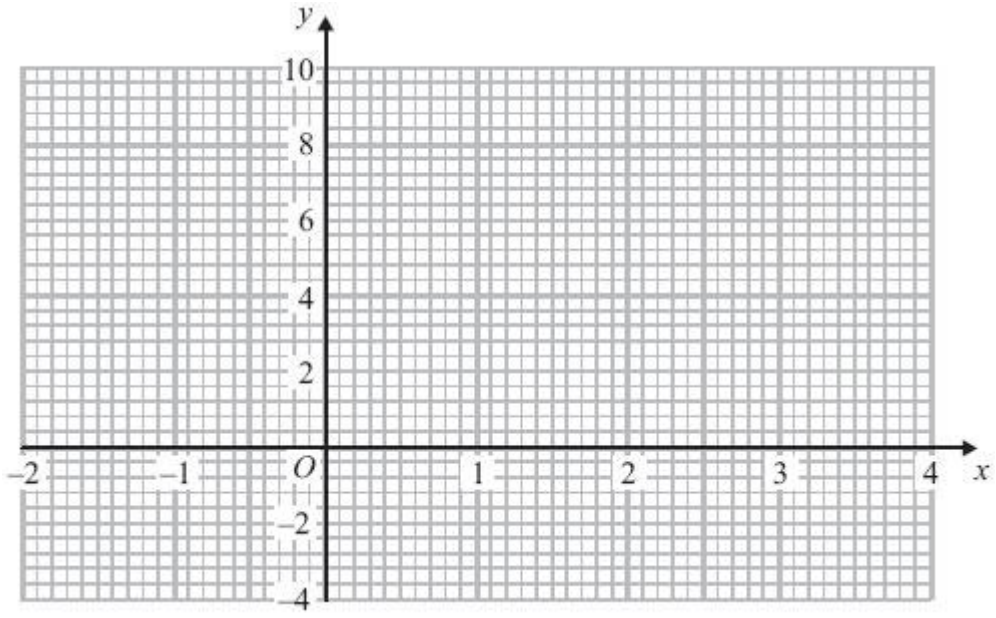
**Q5.**

(a) Complete the table of values for $y = x^2 - 2x$

| $x$ | –2 | –1 | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|
| $y$ | | 3 | 0 | | | 3 | |

**(2)**

(b) On the grid, draw the graph of $y = x^2 - 2x$ for values of $x$ from –2 to 4




**(2)**

(c) Solve $x^2 - 2x - 2 = 1$

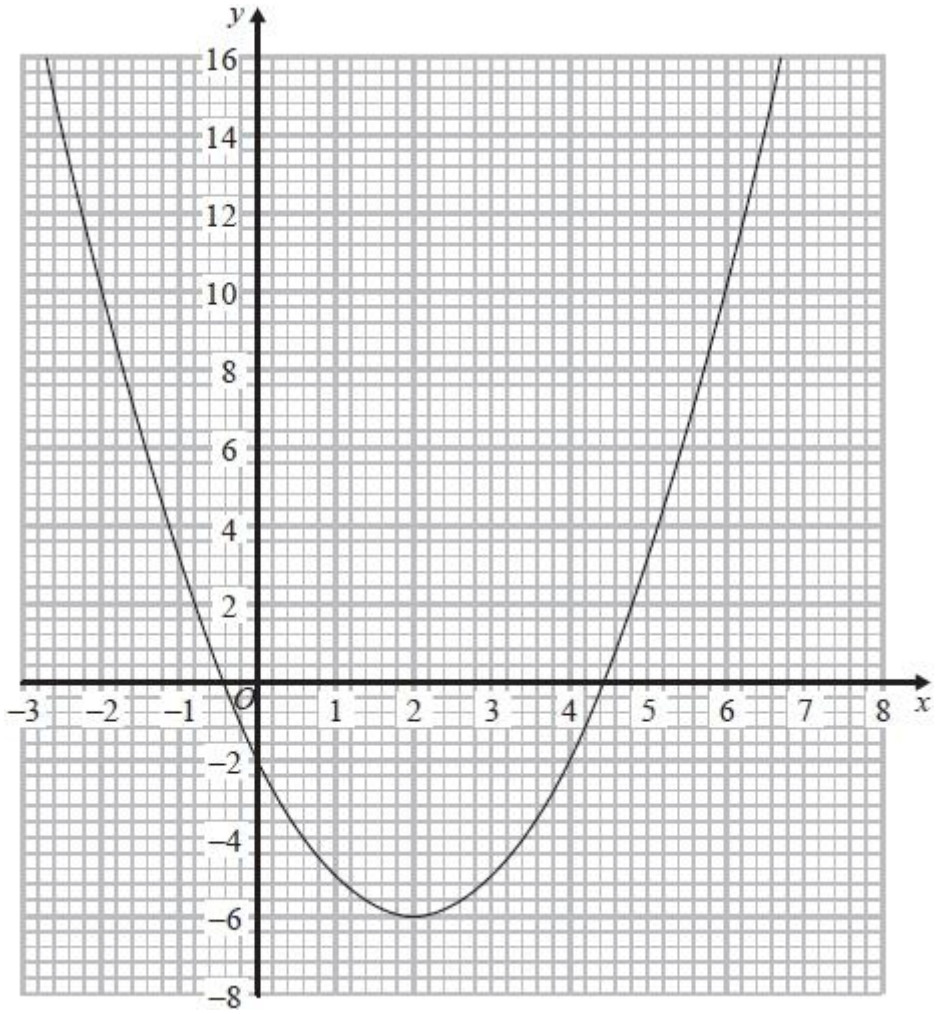
.....

**(2)**

**(Total for Question is 6 marks)**

**Q6.**

The diagram shows the graph of $y = x^2 - 4x - 2$




(a) Use the graph to find estimates for the solutions of

(i) $x^2 - 4x - 2 = 0$

.....

(ii) $x^2 - 4x - 6 = 0$

.....

**(3)**

(b) Use the graph to find estimates for the values of $x$ that satisfy the simultaneous equations

$$y = x^2 - 4x - 2$$
$$x + y = 6$$

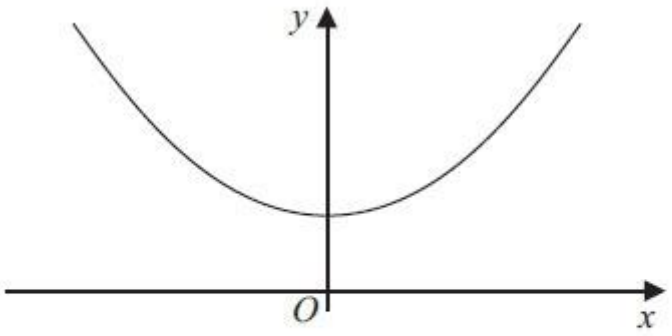
.....

**(3)**

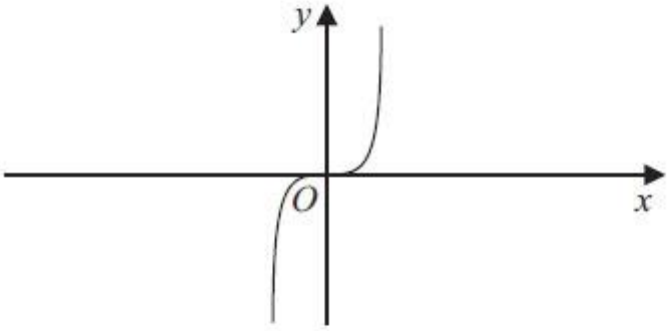
**(Total for question = 6 marks)**

**Q7.**

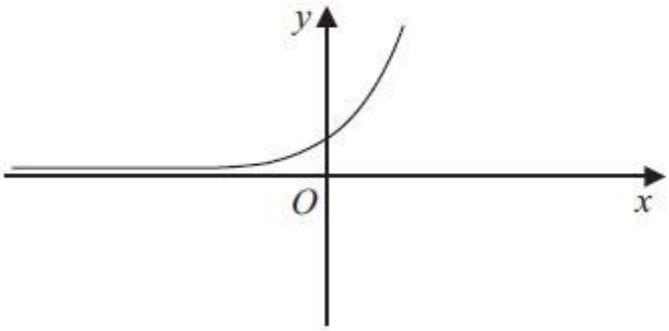
Here are three graphs.




**A**




**B**




**C**

Here are four equations of graphs.

$y = x^3$ $y = x^2 + 4$ $y = \frac{1}{x}$ $y = 2^x$

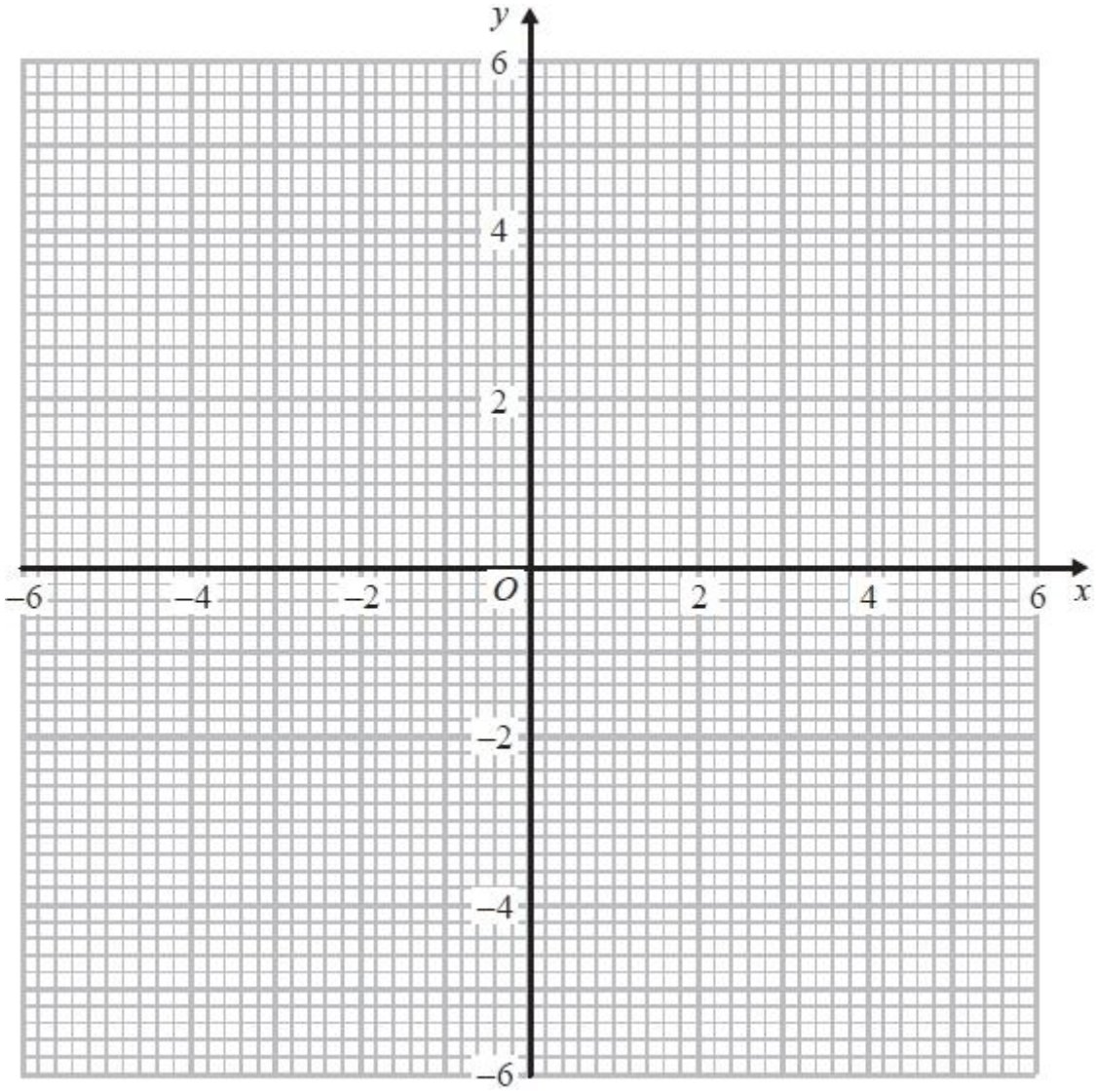
Match each to the correct equation.

**A** and $y$ = . . . . . .
**B** and $y$ = . . . . . .
**C** and $y$ = . . . . . .

**(Total for Question is 3 marks)**

**Q8.**

(a) On the grid, construct the graph of $x^2 + y^2 = 16$




**(2)**

(b) Find estimates for the solutions of the simultaneous equations

$$x^2 + y^2 = 16$$
$$y = 2x + 1$$

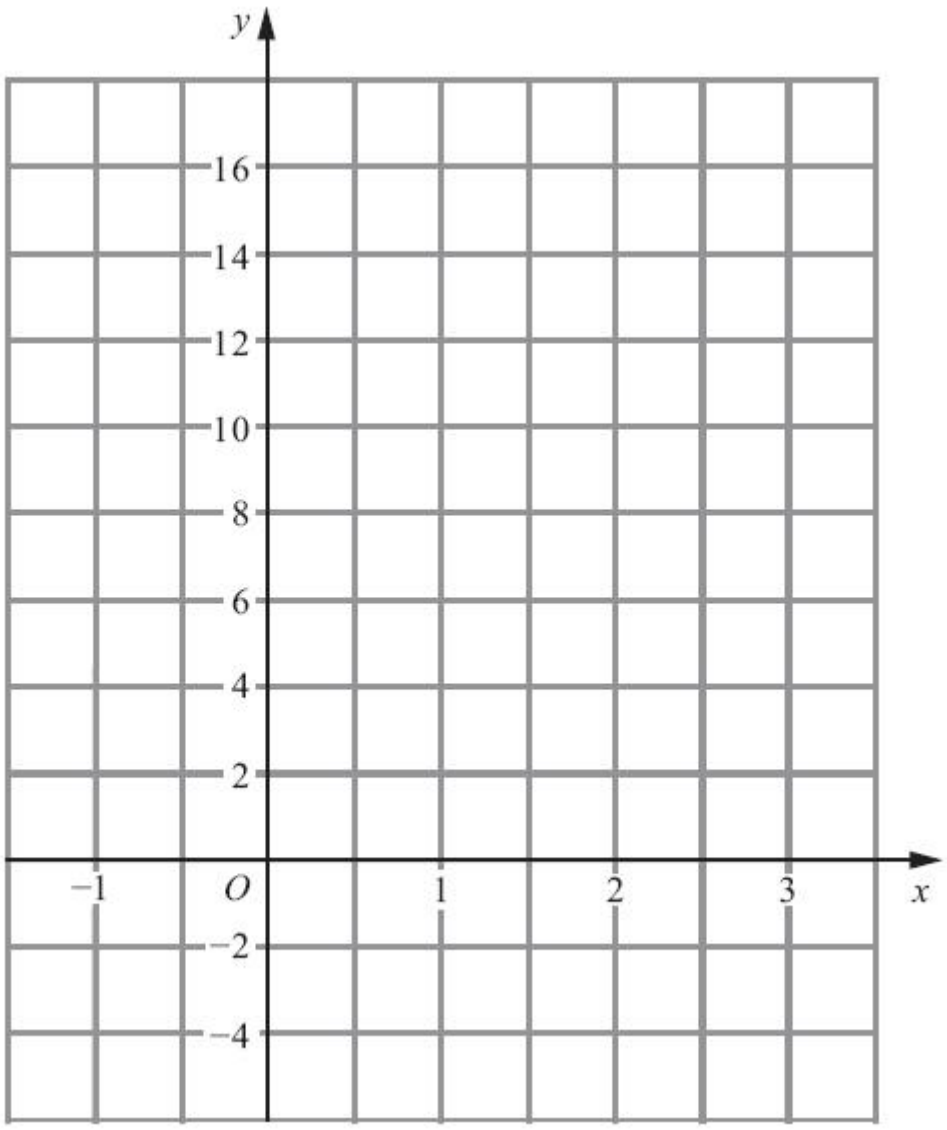
.....

**(3)**

**(Total for question = 5 marks)**

**Q9.**

(a) On the grid, draw the graph of $y = 4x + 2$ from $x = -1$ to $x = 3$




**(3)**

(b) (i) Write down the equation of a straight line that is parallel to $y = 4x + 2$

.....

(ii) Write down the gradient of a straight line that is perpendicular to $y = 4x + 2$

.....

**(2)**

**(Total for Question is 5 marks)**

**Q10.**

(a) Solve the simultaneous equations

$$3x + 5y = 4$$
$$2x - y = 7$$

**(3)**

(b) Find the integer value of $x$ that satisfies both the inequalities

$$x + 5 > 8 \text{ and } 2x - 3$$

**(3)**

**(Total for question = 6 marks)**

**Q11.**

(a) Make $t$ the subject of the formula

$2(a + t) = 5t + 7$

$t =$ . . . . . .

**(3)**

(b) Solve the simultaneous equations

$3x – 4y = 8$
$9x + 5y = –1.5$

$x =$ . . . . . .

$y =$ . . . . . .

**(3)**

**(Total for Question is 6 marks)**

**Q12.**

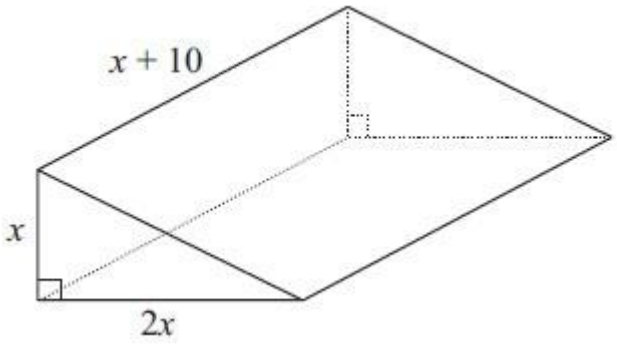



Diagram **NOT** accurately drawn

The diagram shows a solid triangular prism.
All the measurements are in centimetres.

The volume of the prism is $V$ cm$^3$.

Find a formula for $V$ in terms of $x$.
Give your answer in simplified form.

.....

**(Total for Question is 3 marks)**

**Q13.**

The diagram shows a prism.

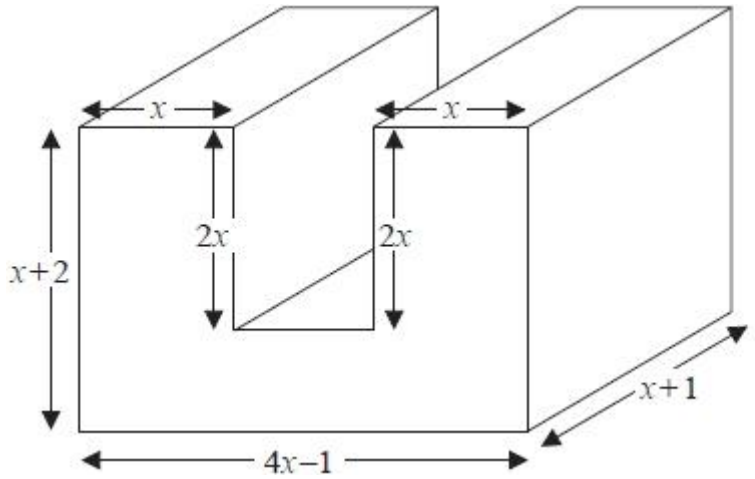



Diagram **NOT** accurately drawn

All measurements are in centimetres.
All corners are right angles.

Find an expression, in terms of $x$, for the volume, in $cm^3$, of the prism.
You must show your working.
Give your answer in its simplest form.

.....

**(Total for question = 4 marks)**