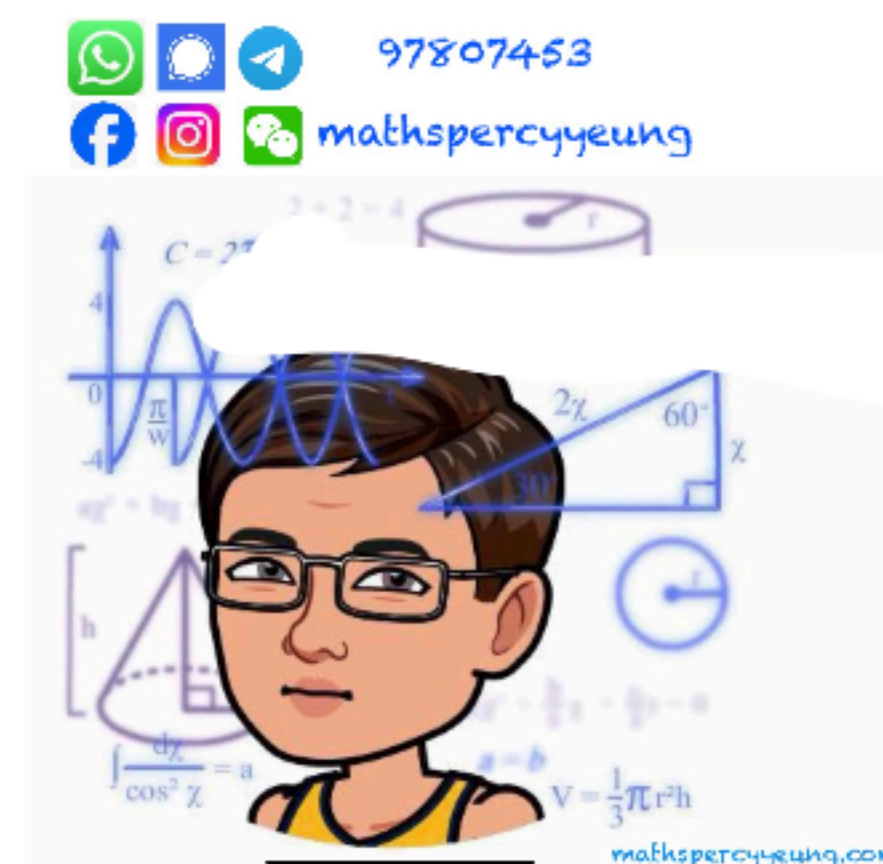


Final Examination 2024-2025

Form 1
173 students

MATHEMATICS
Paper I
Time Allowed: 1 hour 30 minutes



Class: _____ Class No.: _____ Division: _____ Name: _____

Please read the following instructions very carefully.

1. Write your class, class number, name and division in the spaces provided on this cover.
2. This paper carries 100 marks. Attempt ALL questions in this paper. Write your answers in the spaces provided in this Question-Answer Paper.
3. **ALL** working must be clearly shown.
4. The diagrams in this paper are not necessarily drawn to scale.

For Markers' Use Only	
Question No.	Marks
1	(4)
2	(7)
3	(3)
4	(6)
5	(7)
6	(6)
7	(7)
8	(9)

For Markers' Use Only	
Question No.	Marks
9	(5)
10	(5)
11	(5)
12	(6)
13	(9)
14	(5)
15	(8)
16	(8)
Total	(100)

1. Simplify the following.

(a) $4 + 5a - 7(1 + a)$

(2 marks)

(b) $-5x + 9x^2 - 18x \div 6 + x^2$

(2 marks)

2. The general term a_n of a sequence is $7 - 5n$.

(a) Find a_4 .

(2 marks)

(b) If $a_r = -23$, find the value of r .

(2 marks)

(c) If $2a_m - 3a_4 = -57$, find the value of m .

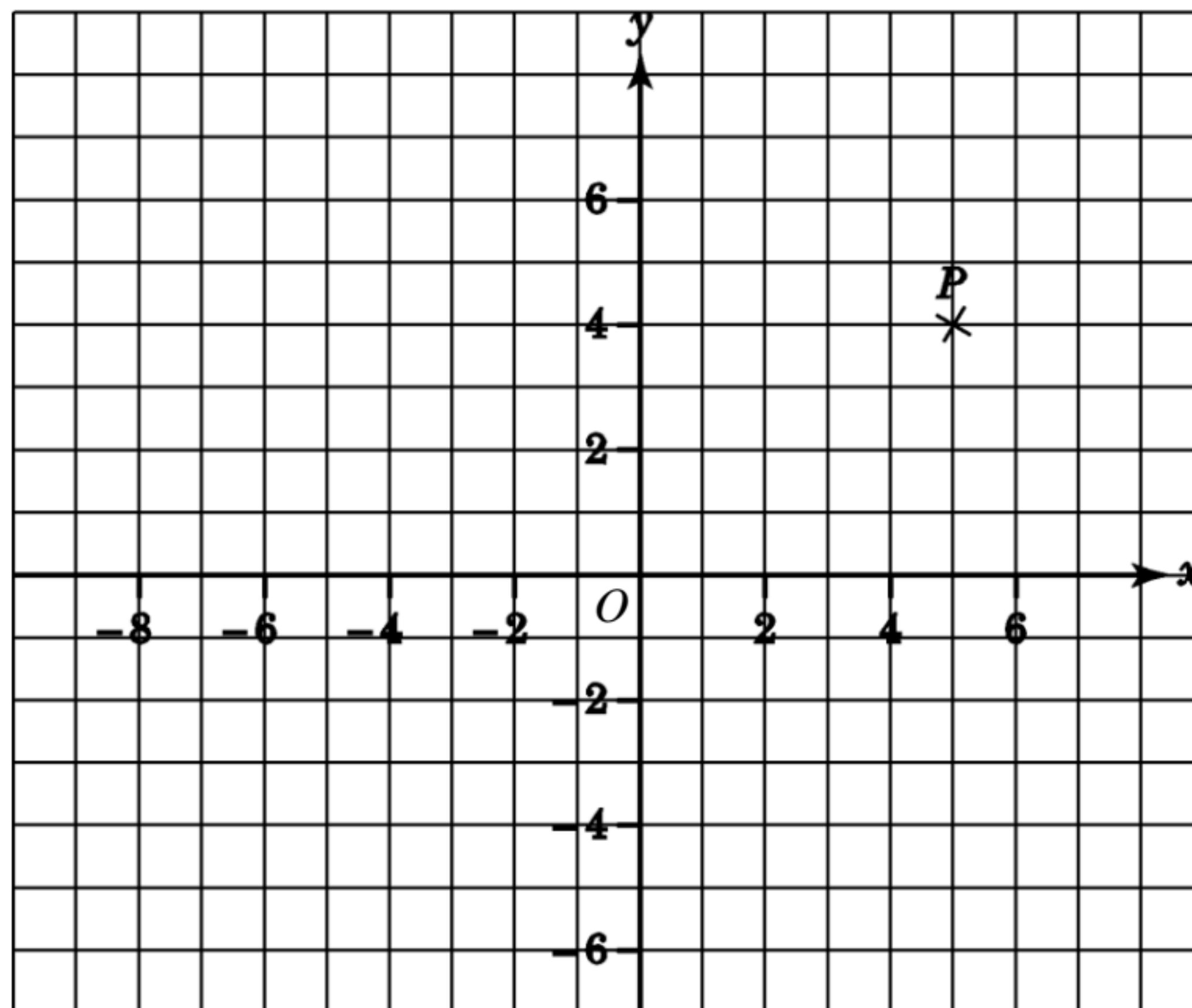
(3 marks)

3. Solve $\frac{y-3}{5} = 2 - \frac{2y}{3}$. (3 marks)

4. (a) Expand and simplify $(16x-7)-2(4x-3)$. (2 marks)

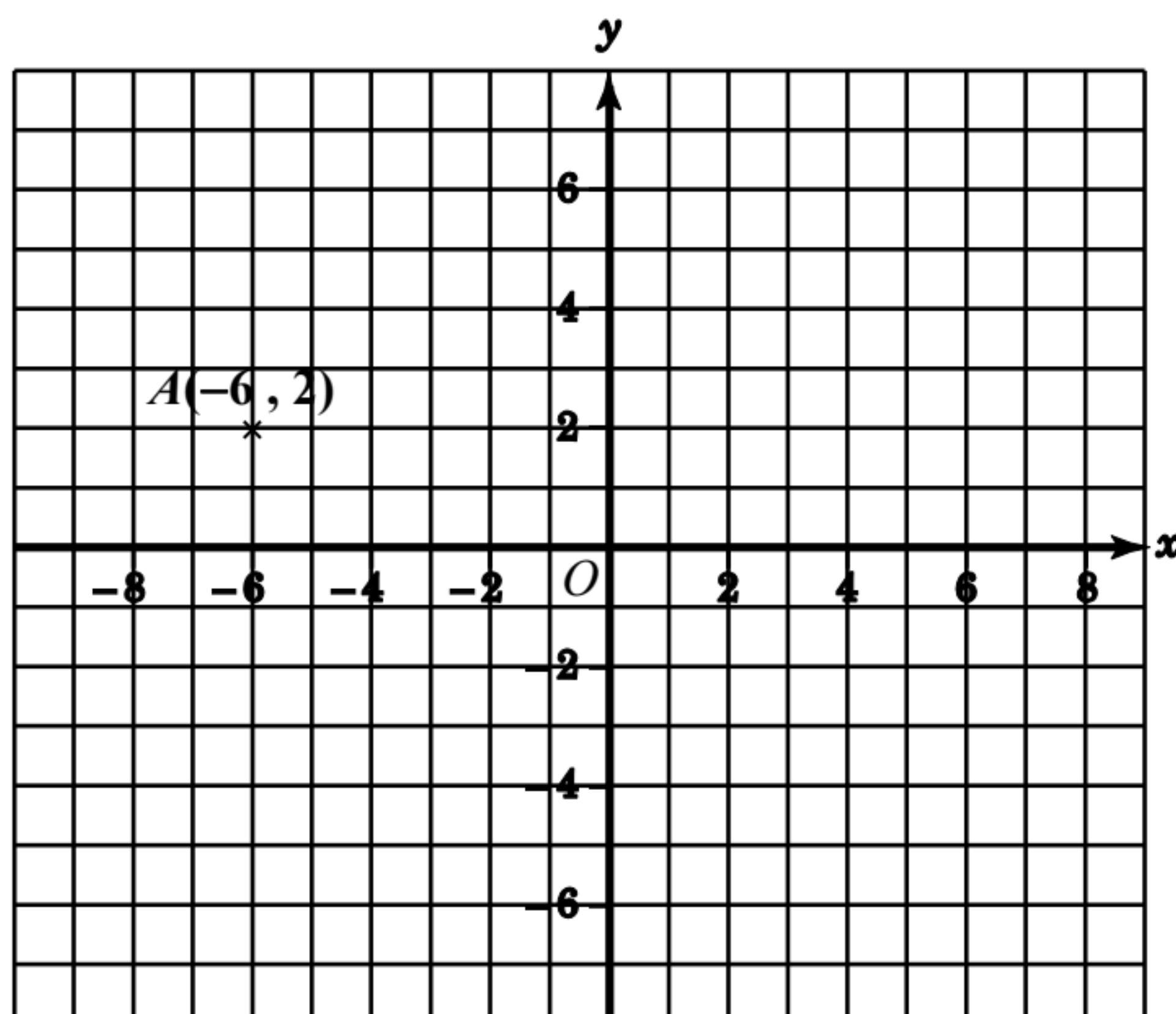
- (b) Hence, expand $(5x-3)[(16x-7)-2(4x-3)]$ and arrange the terms in descending powers of x . (4 marks)

6. In the figure, P is a point on the rectangular coordinate plane. Denote the origin as O .



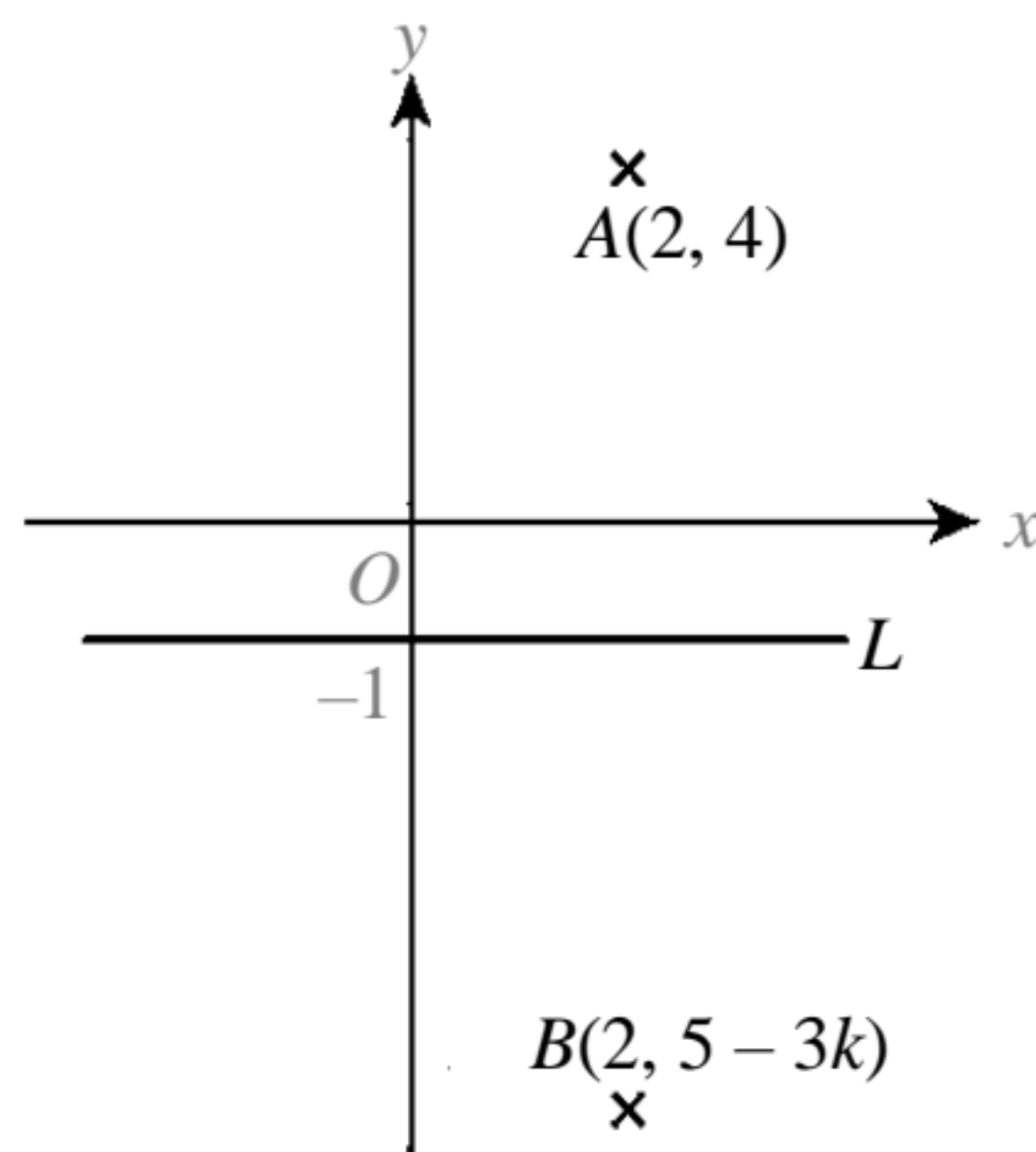
- Plot $Q(-10, -2)$ and $A(-4, 5)$ on the rectangular coordinate plane. (2 marks)
- Join P and Q . PQ cuts the x -axis and y -axis at point B and C respectively. Write down the coordinates of B and C . (2 marks)
- Find the area of $\triangle ABC$. (2 marks)

7. In the figure, A is a point on a rectangular coordinate plane.



- (a) $A(-6, 2)$ is reflected with respect to the y -axis to obtain B . Write down the coordinates of B . (1 mark)
- (b) If A is rotated anticlockwise about the origin through 90° to C , find the coordinates of C . (2 marks)
- (c) C is translated upward by k units to D such that the perpendicular distance from C to AB is the same as the perpendicular distance from D to AB .
- (i) Find the value of k . (2 marks)
- (ii) Find the coordinates of D . (2 marks)

8. In the figure, L is a horizontal line.



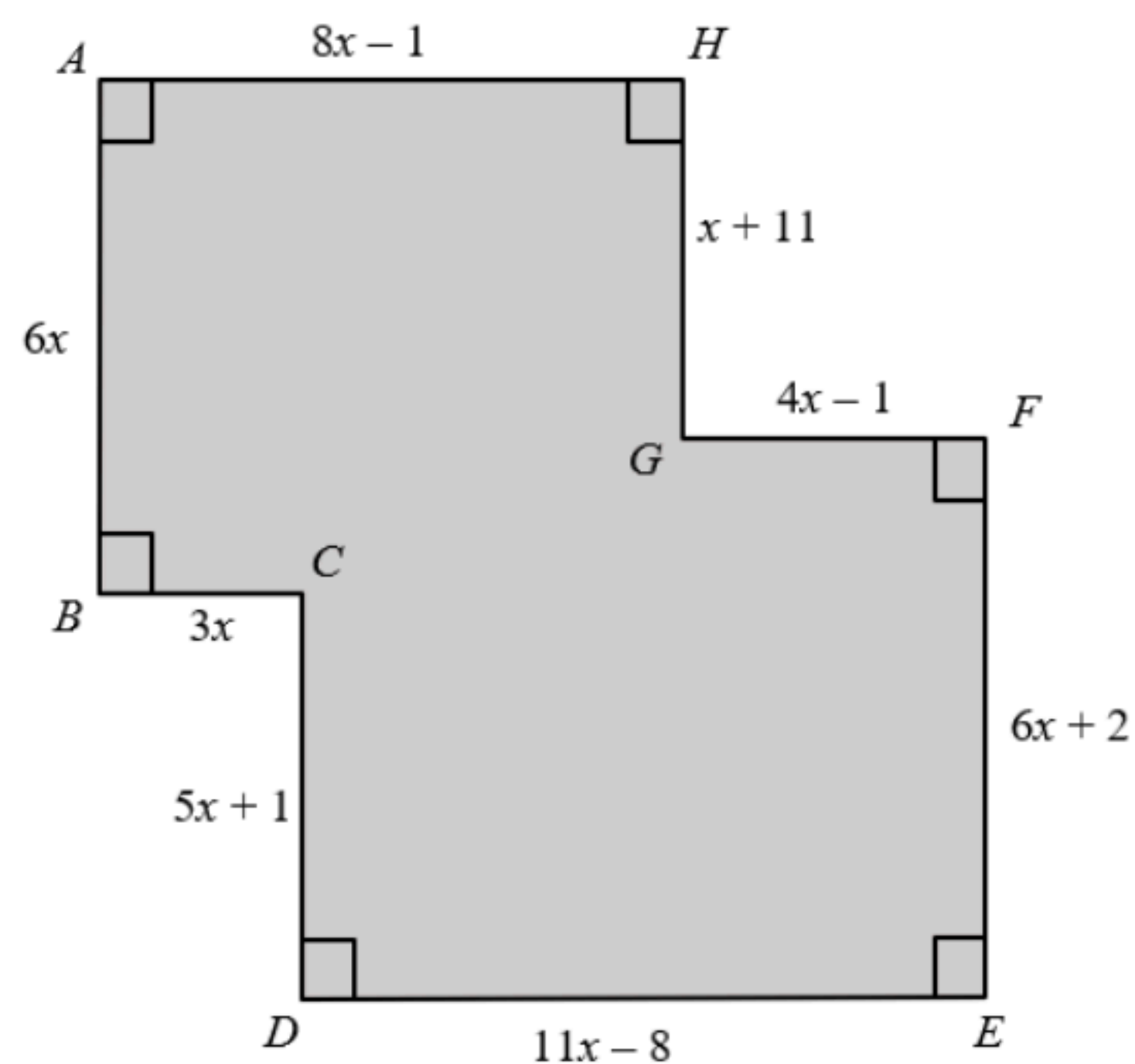
- (a) $D(m, n)$ is a point in Quadrant II such that AD forms a horizontal line segment with 4 units, find the values of m and n . (3 marks)
- (b) $A(2, 4)$ is reflected with respect to L to obtain the image $B(2, 5 - 3k)$. Find the value of k . (3 marks)
- (c) If C is a point on the rectangular plane such that $ABCD$ forms a rectangle, write down the coordinates of C . (1 mark)
- (d) Find the perimeter of $ABCD$. (2 marks)

[illegible]

10. It is given that the perimeter of the figure is 136.

(a) Find the value of x . (2 marks)

(b) Find the area of the figure. (3 marks)



11. A metal cuboid of length 1.5 m, width 0.9 m and height x m is melted and recast to form exactly 30 identical small cubes of side 30 cm.
- (a) Find the value of x . (2 marks)
- (b) Is the total surface area of the cuboid greater than the total surface area of the 30 cubes? Explain your answer. (3 marks)

[illegible]

13. In the figure, $AD = BD$ and $\angle ADB = \angle ADC$.

(a) Find $\angle BAD$.

(1 mark)

(b) Prove that $\triangle ABD \cong \triangle ACD$.

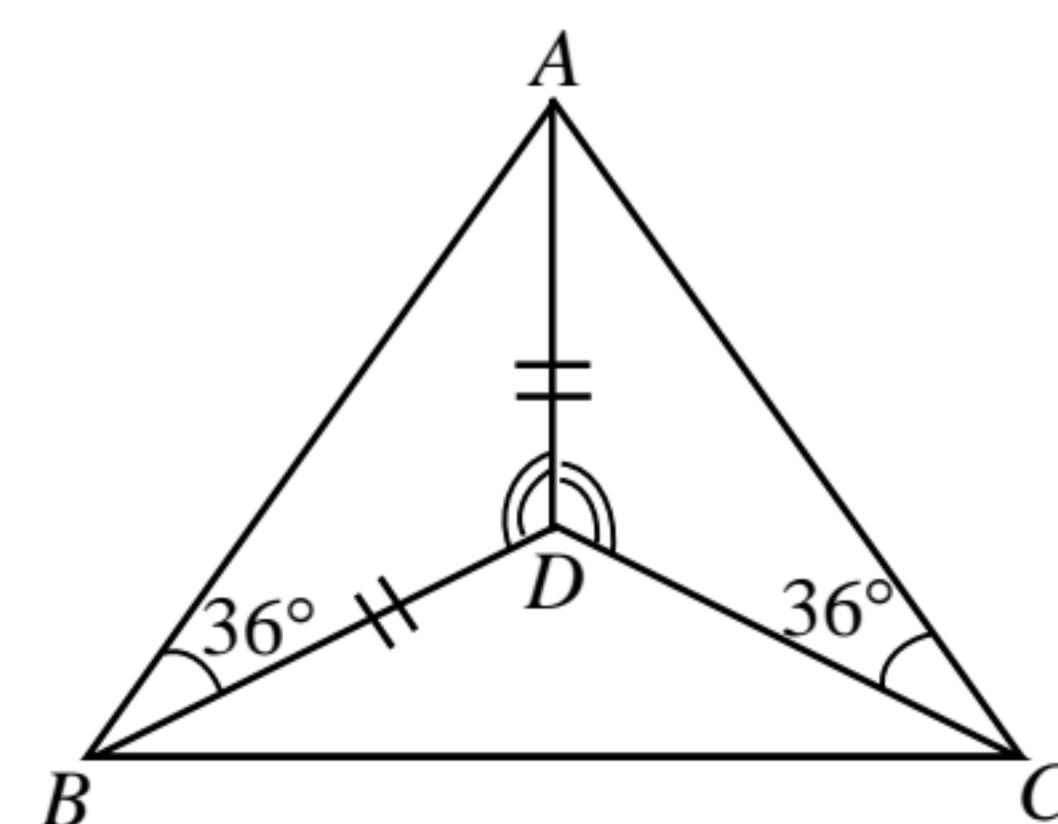
(3 marks)

(c) It is given that $\angle CAD = 3x$, find the value of x .

(2 marks)

(d) Find $\angle ACB$.

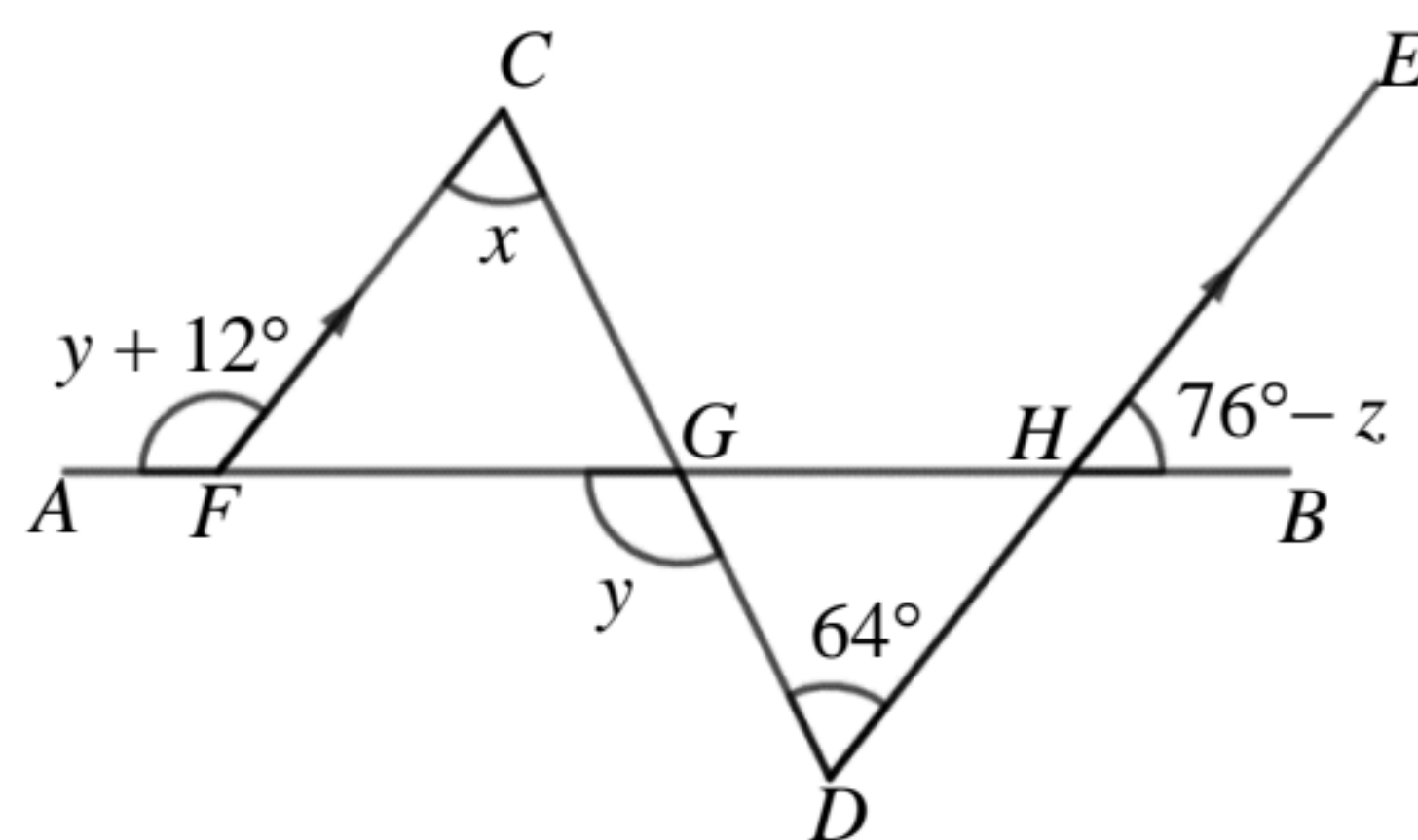
(3 marks)



15. In the figure, AB cuts CF , CD and DE at F , G and H respectively. It is given that $FC \parallel DE$.

Find the values of x , y and z .

(8 marks)



16. In Figure 1, the base and height of $\triangle ABC$ are $10x - 4$ and $5x + 2$ respectively.

- (a) Express the area of $\triangle ABC$ in terms of x . (2 marks)
- (b) $\triangle ABC$ is cut away from a square of length $12x + 6$ to form the polygon $DEFCBAG$ in Figure 2.
- (i) Express the area of polygon $DEFCBAG$ in terms of x . (4 marks)
- (ii) Find the area of polygon $DEFCBAG$ when $x = 2$. (2 marks)

