

Equations and Inequalities

ANSWERS

Calculator | 30 minutes | Total marks: 30

Name _____ Class _____

1

Solve

(a) $3x + 7 = 22$

$$3x = 15 \text{ (1)}$$

$$x = 5 \text{ (1)} \quad [2 \text{ marks}]$$

(b) $\frac{x}{4} - 3 = 2$

$$\frac{x}{4} = 5 \text{ (1)}$$

$$x = 20 \text{ (1)} \quad [2 \text{ marks}]$$

(c) $5(x - 2) = 30$

$$x - 2 = 6 \text{ or } 5x - 10 = 30 \text{ (1)}$$

$$x = 8 \text{ (1)} \quad [2 \text{ marks}]$$

2

Solve $7x - 4 = 3x + 16$

$$4x - 4 = 16 \text{ (1)}$$

$$4x = 20 \text{ (1)}$$

$$x = 5 \text{ (1)} \quad [3 \text{ marks}]$$

3

Solve $2(3x + 1) = 4x - 5$

$$6x + 2 = 4x - 5 \text{ (1)}$$

$$2x = -7 \text{ (1)}$$

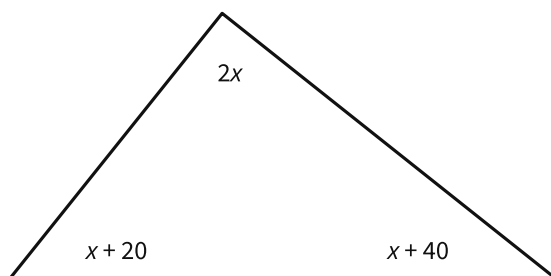
$$x = -3.5 \text{ (1)} \quad [3 \text{ marks}]$$

4 Solve $\frac{2x+1}{3} = 5$

$$2x + 1 = 15 \text{ (1)}$$

$x = 7 \text{ (1)}$ [2 marks]

- 5 The diagram shows a triangle.
All the angles are in degrees.



Not drawn accurately

Work out the size of the largest angle.

$$x + 20 + 2x + x + 40 = 180 \text{ (1)}$$

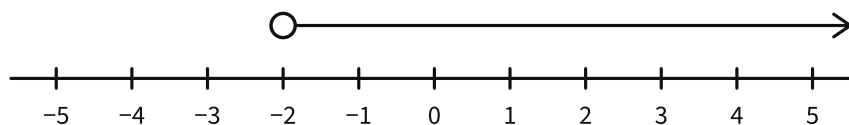
$$4x + 60 = 180 \text{ (1)}$$

$$x = 30 \text{ (1)}$$

Answer 70 (1) ° [4 marks]

6

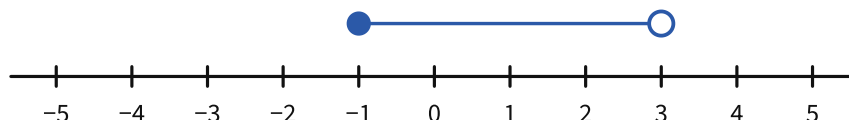
- (a) Write down the inequality shown on the number line.



Answer $x > -2$ (1)

[1 mark]

- (b) Show the inequality $-1 \leq x < 3$ on the number line.



Closed circle at -1 and open circle at 3 (1) Line joining them (1)

[2 marks]

- (c) x is an integer and $-1 \leq x < 3$

Write down all the possible values of x .

Answer $-1, 0, 1, 2$ (1)(1)

[2 marks]

7

- (a) Solve $3x - 5 < 10$

$$3x < 15 \text{ (1)}$$

Answer $x < 5$ (1)

[2 marks]

- (b) Solve $4x + 3 \geq 2x - 7$

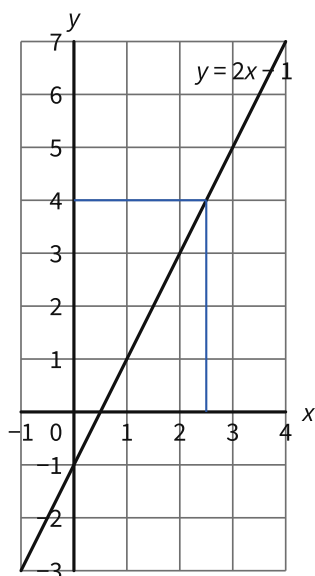
$$2x + 3 \geq -7 \text{ (1)}$$

$$2x \geq -10 \text{ (1)}$$

Answer $x \geq -5$ (1)

[3 marks]

8

Here is the graph of $y = 2x - 1$ Use the graph to solve $2x - 1 = 4$ *line across from $y = 4$ (1)* $x =$ 2.5 (1)

[2 marks]

Question	Topic	RAG
1	I can solve two step equations, including fractions and brackets	
2	I can solve equations with unknowns on both sides	
3	I can solve equations with brackets and unknowns on both sides	
4	I can solve an equation with a fraction	
5	I can form and solve an equation from a problem	
6	I can read, draw and list inequalities on a number line	
7	I can solve linear inequalities	
8	I can use a graph to solve an equation	