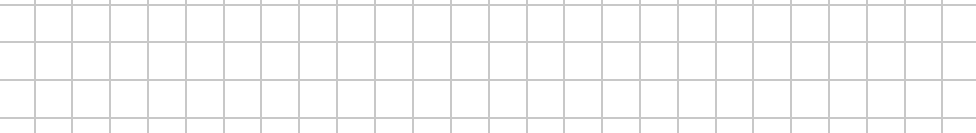


Question 11

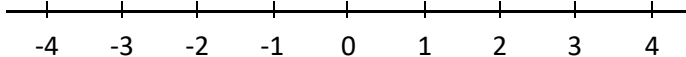
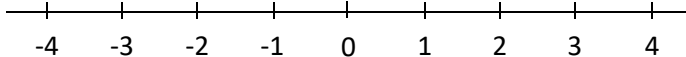
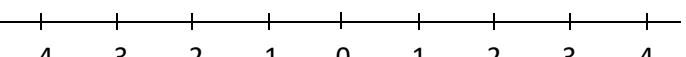
(Suggested maximum time: 10 minutes)

- (a)** Work out the value of $12 - 3k^2$ when $k = -2$.

- (b)** Factorise fully $pm + 3p - m - 3$.



- (c)** Graph each of the following inequalities on the number line given.

Inequality	Number line
$x < 2$, where $x \in \mathbb{Z}$	
$x \leq 3$, where $x \in \mathbb{N}$	
$-2 < x \leq 4$, where $x \in \mathbb{R}$	

Question 7 (Suggested maximum time: 5 minutes)

Question 7 (Suggested maximum time: 5 minutes)

- (a)** Describe each of the following sets. Be as specific as possible.


- (i) The set of natural numbers, \mathbb{N} .

[illegible]

- (ii) The set of integers, \mathbb{Z} .

[illegible]

- (b)** Graph the following inequality on the number line given.

Inequality	Number line
$-3 < x \leq 2$, where $x \in \mathbb{R}$	 <p>A number line from -4 to 4 with tick marks at every integer. An open parenthesis '(' is placed at -3, and a closed parenthesis ')' is placed at 2. The line segment between -3 and 2 is shaded in light blue.</p>

- (c)** Use algebra to solve the following inequality:

$$-7 < 8 - 3g \leq 11$$

A full-page sheet of white graph paper with a light gray grid. The grid consists of small squares, approximately 1 cm by 1 cm each. There are 20 columns and 20 rows of squares, creating a total of 400 small squares. The grid lines are thin and evenly spaced.

Question 11

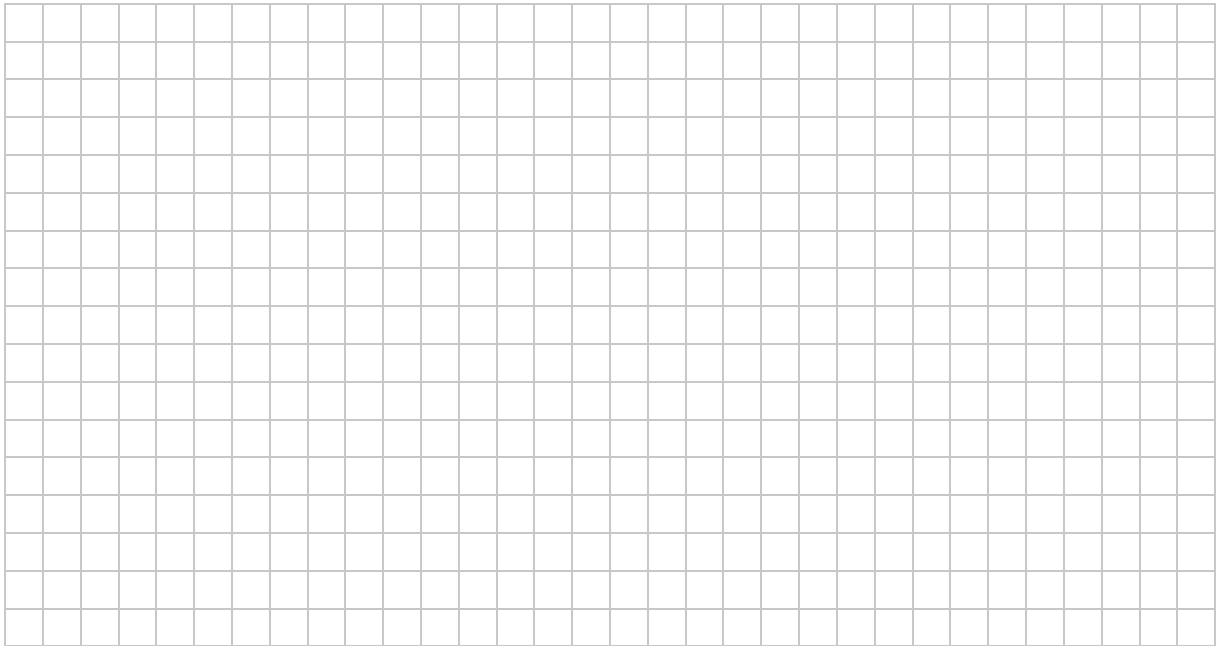
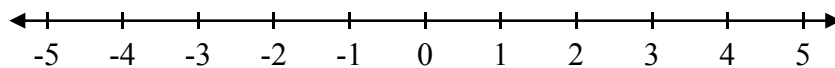
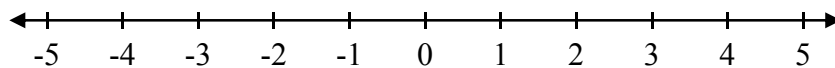
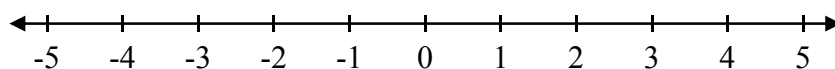
(Suggested maximum time: 5 minutes)

Write down an inequality in x represented by each of the number lines shown below.
 Put a tick (✓) in the correct box in each case to show whether $x \in \mathbb{N}$, $x \in \mathbb{Z}$, or $x \in \mathbb{R}$.
 The first one is done.

Number line	Inequality in x	Domain (Tick one box only in each case)
	$-3 \leq x < 2$	<div> <div>\mathbb{N}</div> <div><input type="checkbox"/></div> </div> <div> <div>\mathbb{Z}</div> <div><input type="checkbox"/></div> </div> <div> <div>\mathbb{R}</div> <div><input checked="" type="checkbox"/></div> </div>
		<div> <div>\mathbb{N}</div> <div><input type="checkbox"/></div> </div> <div> <div>\mathbb{Z}</div> <div><input type="checkbox"/></div> </div> <div> <div>\mathbb{R}</div> <div><input type="checkbox"/></div> </div>
		<div> <div>\mathbb{N}</div> <div><input type="checkbox"/></div> </div> <div> <div>\mathbb{Z}</div> <div><input type="checkbox"/></div> </div> <div> <div>\mathbb{R}</div> <div><input type="checkbox"/></div> </div>
		<div> <div>\mathbb{N}</div> <div><input type="checkbox"/></div> </div> <div> <div>\mathbb{Z}</div> <div><input type="checkbox"/></div> </div> <div> <div>\mathbb{R}</div> <div><input type="checkbox"/></div> </div>

Question 7**(Suggested maximum time: 5 minutes)****(a)** Solve the following equation.

$$\frac{2x+4}{3} - \frac{5x-7}{2} = 5$$

**(b)** Graph each of the following inequalities on the number line given.**(i)** $x < 4$, where $x \in \mathbb{N}$.**(ii)** $x < 4$, where $x \in \mathbb{Z}$.**(iii)** $x < 4$, where $x \in \mathbb{R}$.

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