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
$\boldsymbol{x < 2}$, where $\boldsymbol{x} \in \mathbb{Z}$	-4 -3 -2 -1 0 1 2 3 4
$\boldsymbol{x \leq 3}$, where $\boldsymbol{x} \in \mathbb{N}$	-4 -3 -2 -1 0 1 2 3 4
$\boldsymbol{-2 < x \leq 4}$, where $\boldsymbol{x} \in \mathbb{R}$	-4 -3 -2 -1 0 1 2 3 4

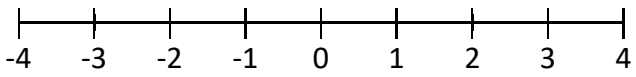
Question 7 **(Suggested maximum time: 5 minutes)**

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

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

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

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

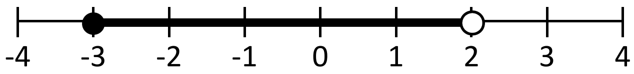
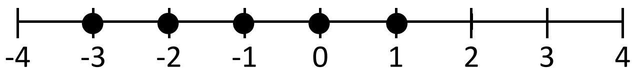
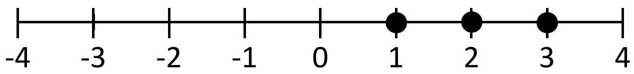
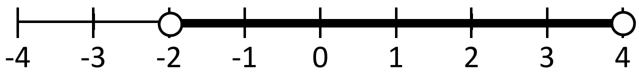
Inequality	Number line
$-3 < x \leq 2$, where $x \in \mathbb{R}$	

(c) Use algebra to solve the following inequality:

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

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)
	$-3 \leq x < 2$	$\mathbb{N}$ ☐ $\mathbb{Z}$ ☐ $\mathbb{R}$ ☑
		$\mathbb{N}$ ☐ $\mathbb{Z}$ ☐ $\mathbb{R}$ ☐
		$\mathbb{N}$ ☐ $\mathbb{Z}$ ☐ $\mathbb{R}$ ☐
		$\mathbb{N}$ ☐ $\mathbb{Z}$ ☐ $\mathbb{R}$ ☐

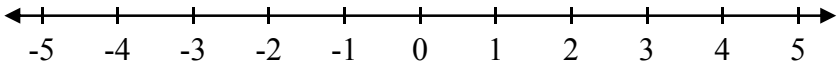
Question 7 **(Suggested maximum time: 5 minutes)**

(a) Solve the following equation.

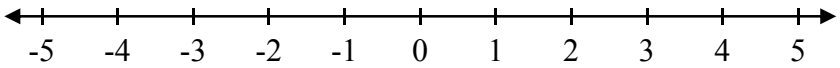
$$\frac{2x+4}{3} - \frac{5x-7}{2} = 5$$

(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 $x \in \mathbb{R}$.