7 Solve.

$4x - 3 \geqslant 9$

$+3 \quad +3$

$4x \geqslant 12$

$\div 4 \quad \div 4$

$x \geqslant 3$

$x \geqslant 3$ [2]

6 Solve the inequality.

$7 \leqslant 11x$

$\div 11 \quad \div 11$

$\frac{7}{11} \leqslant x$ or $x \geqslant \frac{7}{11}$

$x \geqslant \frac{7}{11}$ [1]

15 Solve.

$12x - 3 \geqslant 4x + 13$

$-4x \quad -4x$

$8x - 3 \geqslant 13$

$+3 \quad +3$

$8x \geqslant 16$

$\div 8 \quad \div 8$

$x \geqslant 2$

$x \geqslant 2$ [2]

7 Solve $2x + 3 < 5x - 12$.

$-2x \quad -2x$

$3 < 3x - 12$

$+12 \quad +12$

$15 < 3x$

$\div 3 \quad \div 3$

$5 < x$

$x > 5$ [2]

8 Solve.

(b) $11x - 3 \geqslant 2(2x + 9)$

$11x - 3 \geqslant 4x + 18$

$-4x \quad -4x$

$7x - 3 \geqslant 18$

$+3 \quad +3$

$7x \geqslant 21$

$\div 7 \quad \div 7$

$x \geqslant 3$

$x \geqslant 3$ ..... [3]

5 Solve.

$9 - 2x \leqslant 5(x + 6)$

$9 - 2x \leqslant 5x + 30$

$+2x \quad +2x$

$9 \leqslant 7x + 30$

$-30 \quad -30$

$-21 \leqslant 7x$

$\div 7 \quad \div 7$

$-3 \leqslant x$

$x \geqslant -3$ ..... [3]

6 Solve $2x + 6 > 5x - 10$.

$2x + 6 > 5x - 10$

$-2x \quad -2x$

$6 > 3x - 10$

$+10 \quad +10$

$16 > 3x$

$\div 3 \quad \div 3$

$\frac{16}{3} > x$

$x < \frac{16}{3}$ ..... [2]

4 **(a)** Solve the inequality.

$3m + 12 \leqslant 8m - 5$

$-3m \quad -3m$

$12 \leqslant 5m - 5$

$+5 \quad +5$

$17 \leqslant 5m$

$\div 5 \quad \div 5$

$\frac{17}{5} \leqslant m$

$m \geqslant \frac{17}{5}$ ..... [2]

11 Solve.

$4(2x-3) \geqslant 43+3x$

$8x - 12 \geqslant 43 + 3x$

$-3x \quad -3x$

$5x - 12 \geqslant 43$

$+12 \quad +12$

$5x \geqslant 55$

$\div 5 \quad \div 5$

$x \geqslant 11$

$x \geqslant 11$ [3]

13 Solve.

$4-3x \geqslant \frac{6-x}{5}$

$4-3x \quad \times 5$

$5(4-3x) \geqslant 6-x$

$20 - 15x \geqslant 6 - x$

$+15x \quad +15x$

$20 \geqslant 6 + 14x$

$-6 \quad -6$

$14 \geqslant 14x$

$\div 14 \quad \div 14$

$1 \geqslant x$

$x \leqslant 1$ [3]

7 **(a)** Naga has n marbles.
Panav has three times as many marbles as Naga.
Naga loses 5 marbles and Panav buys 10 marbles.
Together they now have more than 105 marbles.

Write down and solve an inequality in n.

Before:
Naga: n
Panav: $3n$

After:
Naga: $n-5$
Panav: $3n+10$

$n-5+3n+10 > 105$

$4n + 5 > 105$

$-5 \quad -5$

$4n > 100$

$\div 4 \quad \div 4$

$n > 25$

$n > 25$ [3]

1 Write down the integer values of x that satisfy the inequality $-2 \leqslant x < 2$.

$-2, -1, 0, 1$ [2]

4 Find the integer values of x when $-1 \leqslant x < 3$.

$-1, 0, 1, 2$ [2]

(c) $-8 < 3x - 2 \leqslant 7$

(i) Solve the inequality.

$-8 < 3x - 2 \leqslant 7$

$+2 \quad +2 \quad +2$

$-6 < 3x \leqslant 9$

$\div 3 \quad \div 3 \quad \div 3$

$-2 < x \leqslant 3$

$-2 < x \leqslant 3$ [3]

(ii) Find the integer values of x that satisfy the inequality.

$-1, 0, 1, 2, 3$ [1]

12 x is an integer and $-3 \leqslant 2x - 1 < 3$.

Find the values of x.

$-3 \leqslant 2x - 1 < 3$

$+1 \quad +1 \quad +1$

$-2 \leqslant 2x < 4$

$\div 2 \quad \div 2 \quad \div 2$

$-1 \leqslant x < 2$

$-1, 0, 1$ [2]

10 (a) Find all the positive integers which satisfy the inequality.

$3n - 8 > 5n - 15$

$-3n \quad -3n$

$-8 > 2n - 15$

$+15 \quad +15$

$7 > 2n$

$\div 2 \quad \div 2$

$3.5 > n$

or

$n < 3.5$

1, 2, 3 ..... [2]

(0 is neither positive or negative)

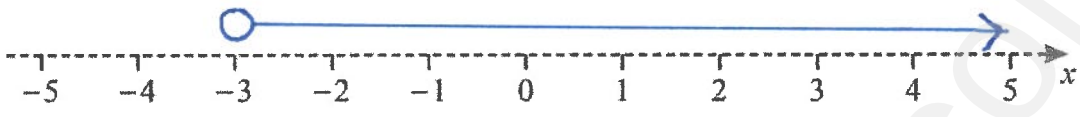
3 **(a)** Solve $x+9>6$.

$-9 \quad -9$

$x > -3$

$x > -3$ [1]

(b) Show your answer to **part (a)** on this number line.



[1]

4 **(a)** Solve $11+2x \geqslant 5$.

$11 + 2x \geqslant 5$

$-11 \quad -11$

$2x \geqslant -6$

$\div 2 \quad \div 2$

$x \geqslant -3$

$x \geqslant -3$ [2]

(b) Show your solution to **part (a)** on this number line.

[1]

(b) **(i)** Solve.

$x-3 \leqslant 5x+7$

$x - 3 \leqslant 5x + 7$

$-x \quad -x$

$-3 \leqslant 4x + 7$

$-7 \quad -7$

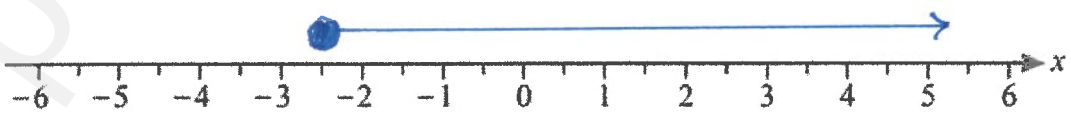
$-10 \leqslant 4x$

$\div 4 \quad \div 4$

$-2.5 \leqslant x$

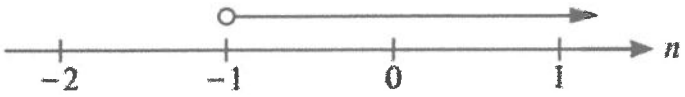
$x \geqslant -2.5$ [2]

(ii) Show your answer to **part (b)(i)** on the number line.



[1]

7



Write down the inequality, in terms of n, shown by the number line.

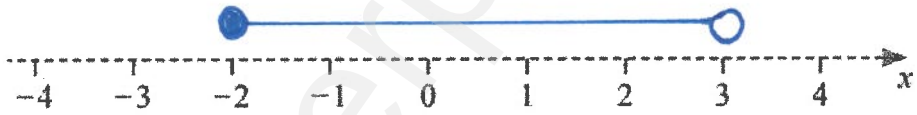
$n > -1$ [1]

7 (a)

Write down the inequality in x shown by the number line.

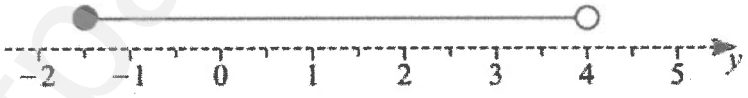
$-2 < x \leqslant 1$ [2]

1 On the number line, show the inequality $-2 \leqslant x < 3$.



[2]

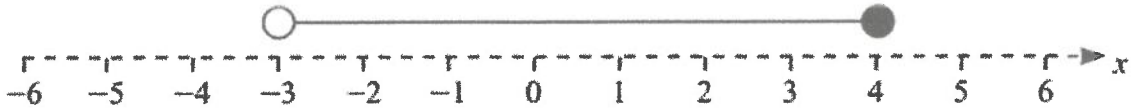
7



Write down the inequality in y shown by the number line.

$-1.5 \leqslant y < 4$ [2]

7

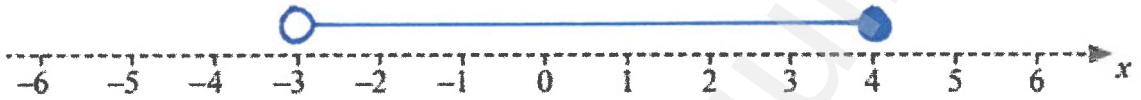


Write down the inequality for x represented on the number line.

$-3 < x \leqslant 4$ [2]

3 Show this inequality on the number line.

$-3 < x \leqslant 4$



[2]

3 (a)

Write down the inequality shown by the number line.

$-2 < x \leqslant 4$ [1]

(b) $-3 \leqslant 2x + 3 < 9$

(i) Solve the inequality.

$-3 \leqslant 2x + 3 < 9$

$-3 \quad -3 \quad -3$

$-6 \leqslant 2x < 6$

$\div 2 \quad \div 2 \quad \div 2$

$-3 \leqslant x < 3$

$-3 \leqslant x < 3$ [3]

(ii) Write down all the integer values of x that satisfy the inequality.

$-3, -2, -1, 0, 1, 2$ [2]