1 (b) Solve the inequality $3x + 15 < 8x + 3$

Show clear algebraic working.

$3x + 15 < 8x + 3$

$15 - 3 < 8x - 3x$ (1)

$12 < 5x$ (1)

$\frac{12}{5} < x$ (1)

$x > \frac{12}{5}$

.....

(3)

(Total for Question 1 is 3 marks)

2 (c) Solve the inequality $4x + 7 > 2$

$4x + 7 > 2$

$4x > 2 - 7$ (−7)

$4x > -5$ (1)

$x > -\frac{5}{4}$ (÷4) (1)

$x > -\frac{5}{4}$

(2)

(Total for Question 2 is 2 marks)

3 (a) Write down the integer values of x that satisfy the inequality $-2 < x \leqslant 4$

$-1, 0, 1, 2, 3, 4$ (2)

(2)

The region **R**, shown shaded in the diagram, is bounded by three straight lines.

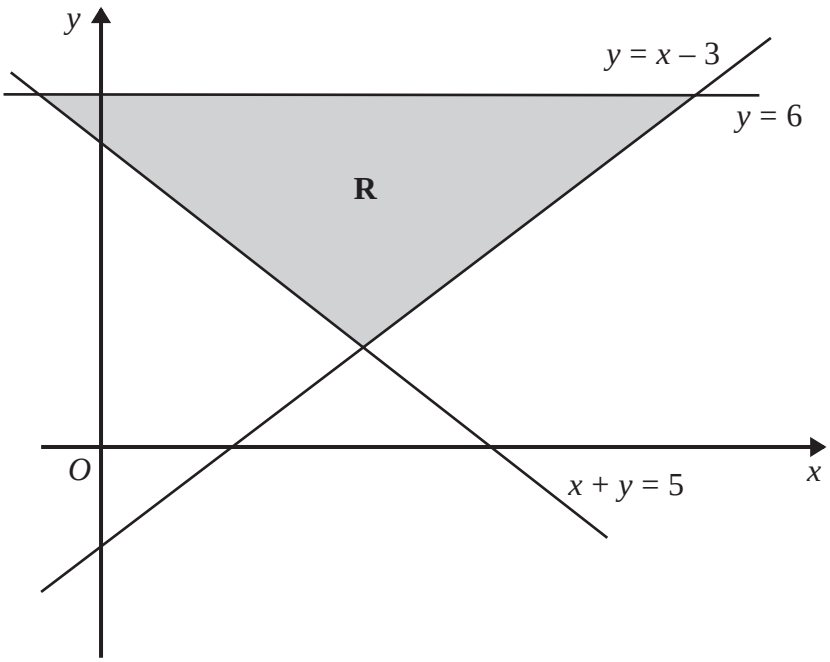


Diagram **NOT** accurately drawn

(b) Write down the three inequalities that define the region **R**.

$y \leq 6$

$x + y \geq 5$ (2)

$y \geq x - 3$

(2)

(Total for Question 3 is 4 marks)

4 (a) Solve the inequality $2x + 7 > 4$

$2x > 4 - 7$ (-7) (1)

$2x > -3$

$x > \frac{-3}{2}$ (÷2)

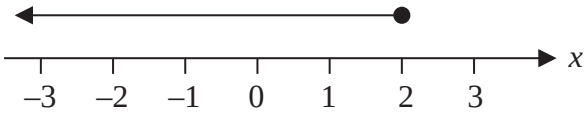
$x > -1.5$ (1)

$x > -1.5$

(2)

(Total for Question 4 is 2 marks)

5 (a)



Write down the inequality shown on the number line.

$x \leqslant 2$ (1)

(1)

$-4 \leqslant 2y < 6$

y is an integer.

(b) Write down all the possible values of y.

$-4 \leqslant 2y < 6$ $\div 2$

$-2 \leqslant y < 3$

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

(2)

(c) Solve the inequality $7t - 3 \leqslant 2t + 31$

Show your working clearly.

$7t - 3 \leqslant 2t + 31$

$7t - 2t \leqslant 31 + 3$

$5t \leqslant 34$ (1)

$t \leqslant \frac{34}{5}$

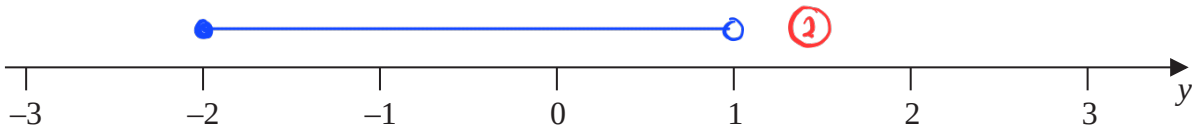
$t \leqslant 6.8$ (1)

$t \leqslant 6.8$

(2)

(Total for Question 5 is 5 marks)

6 (a) On the number line, show the inequality $-2 \leqslant y < 1$



(2)

n is an integer.

(b) Write down all the values of n that satisfy $-3.4 < n \leqslant 2$

-3, -2, -1, 0, 1, 2

(2)

(Total for Question 6 is 4 marks)

7 (c) (i) Solve the inequality $7t - 8 < 2t + 7$

$7t - 8 < 2t + 7$

$7t - 2t < 8 + 7$

$5t < 15$ (1)

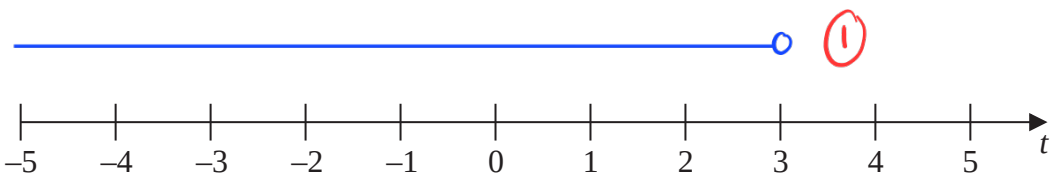
$t < 3$ (1)

$t < 3$

.....

(2)

(ii) On the number line below, represent the solution set of the inequality solved in part (c)(i)



(1)

(Total for Question 7 is 3 marks)

8 Solve the inequality $3 - 4x \leqslant 11$

$3 - 4x \leq 11$

$3 - 11 \leq 4x$

$-8 \leq 4x$ (1)

$\frac{-8}{4} \leq x$

$-2 \leq x$ (1)

$x \geq -2$

(Total for Question 8 is 2 marks)

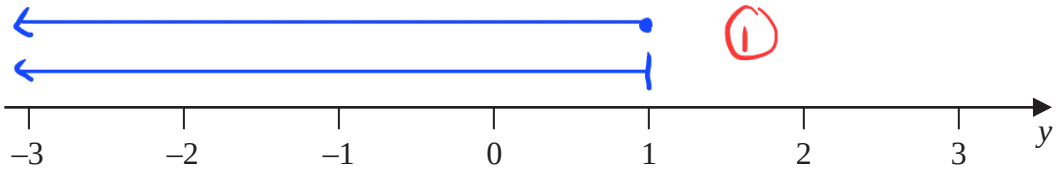
9 n is an integer.

(a) Write down all the values of n such that $-2 \leqslant n < 3$

-2, -1, 0, 1, 2 (2)

(2)

(b) On the number line, represent the inequality $y \leqslant 1$



(1)

(Total for Question 9 is 3 marks)

10 (a) Solve $4y + 5 > 12$

$4y > 12 - 5$ (1)

$4y > 7$

$y > \frac{7}{4}$ (1)

$y > \frac{7}{4}$

(2)

(Total for Question 10 is 2 marks)

11 (a) Solve the inequality $5x - 7 \leqslant 2$

$5x \leq 2 + 7$ (1)

$5x \leq 9$

$x \leq \frac{9}{5}$

$x \leq 1.8$ (1)

$x \leq 1.8$

(2)

(Total for Question 11 is 2 marks)

$-4 < y \leq 1$

12 $-8 < 2y \leqslant 2$

y is an integer.

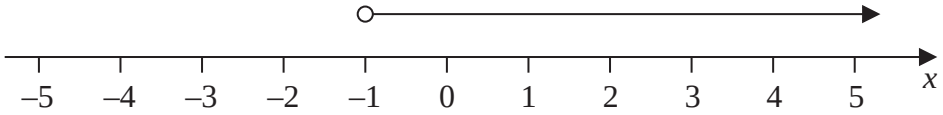
(a) Find all the possible values of y

$-3, -2, -1, 0, 1$ (2)

.....

(2)

(b) Write down the inequality shown on the number line.



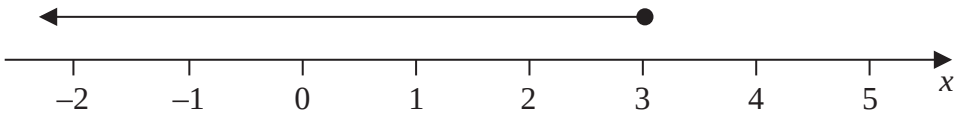
$x > -1$ (1)

.....

(1)

(Total for Question 12 is 3 marks)

13 (b) Write down the inequality shown on the number line



$x \leqslant 3$ (1)

(1)

(c) Solve the inequality $7w + 6 > 12w + 14$

$7w - 12w > 14 - 6$ (1)

$-5w > 8$ (1)

$w < -\frac{8}{5}$ (1)

$w < -\frac{8}{5}$

(3)

(Total for Question 13 is 4 marks)

14 (a) Solve $9 - 4x > 17$

$-4x > 17 - 9$ (1)

$-4x > 8$

$x < \frac{8}{-4}$

$x < -2$ (1)

$x < -2$

(2)

(Total for Question 14 is 2 marks)