GCSE Higher Mathematics Name _____

Solving Inequalities and Graphical Inequalities

1. Solve the inequality

$$5x + 3 > 10$$

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Answer .....

(Total 2 marks)

2. (a) Solve the inequality $2x + 3 \geq 1$

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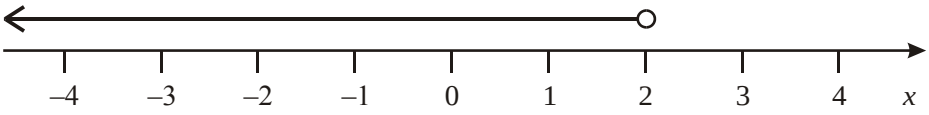
Answer .....

(2)

(b) Write down the inequality shown by the following diagram.



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Answer .....

(1)

(c) Write down all the integers that satisfy both inequalities shown in parts (a) and (b).

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Answer .....

(1)

(Total 4 marks)

3. (a) Solve the inequality $3(x - 2) \leq 9$

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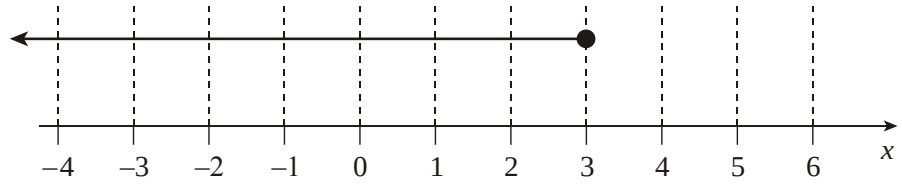
Answer .....

(3)

(b) The inequality $x \leq 3$ is shown on the number line below.



Draw another inequality on the number line so that only the following integers satisfy both inequalities

{–2, –1, 0, 1, 2, 3}

(1)
(Total 4 marks)

4. (a) Solve the inequality $3x + 7 \geq 13$

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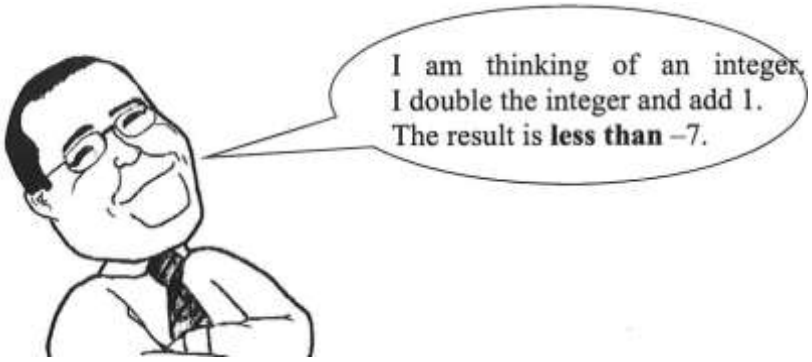
Answer .....

(2)

(b) A mathematics teacher says



What is the **largest** integer the teacher could have thought of?

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Answer .....

(2)

(Total 4 marks)

5. (a) List the integer values of x such that

$$-2 \leq x < 3$$

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Answer .....

(2)

(b) Solve the inequality

$$x^2 > 64$$

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Answer .....

(2)

(Total 4 marks)

6. On the grid below, indicate clearly the region defined by the three inequalities

$$x \geq 1$$
$$y \geq x - 1$$
$$x + y \leq 7$$

Mark the region with an *R*.

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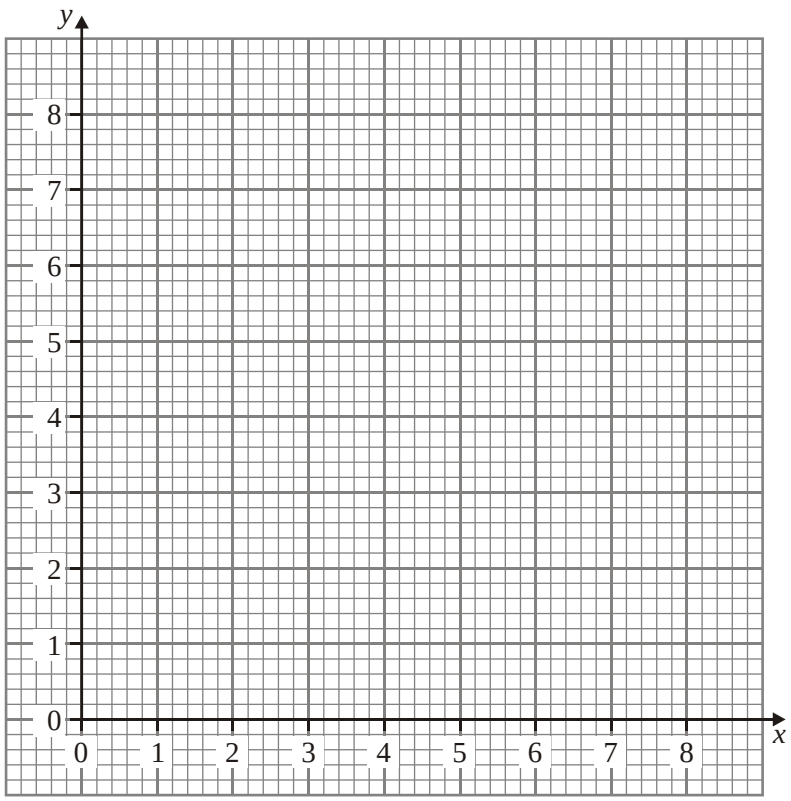

(Total 3 marks)

7. On the grid below, indicate clearly the region defined by the three inequalities

$$y \leq 4$$
$$x \geq -3$$
$$y \geq x + 2$$

Mark the region with an *R*.

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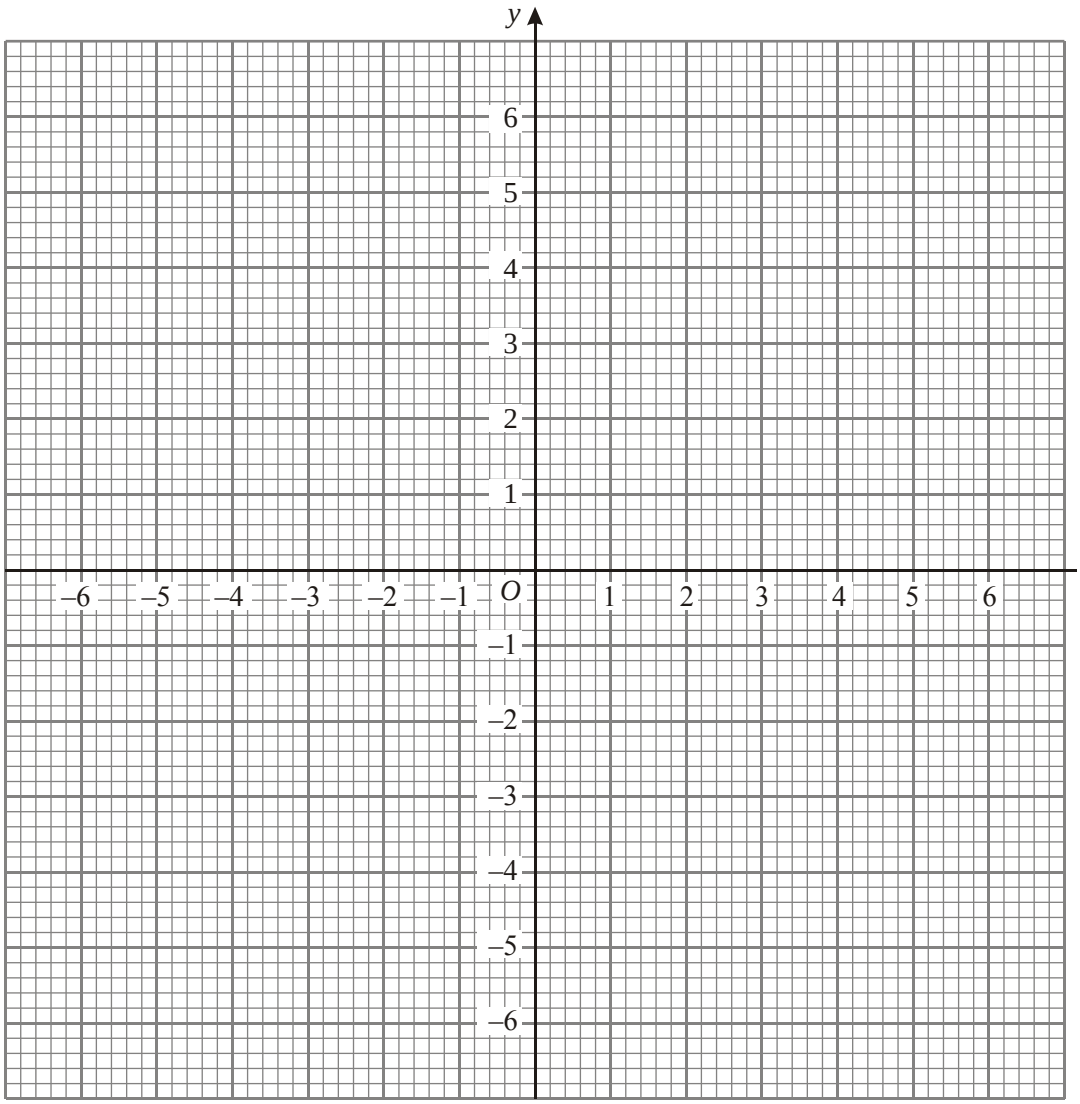

(Total 3 marks)

8. (a) List the integer values of n such that $3 \leq 3n < 18$

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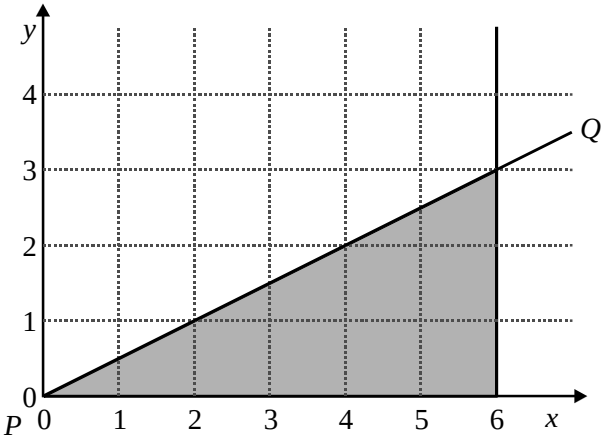
Answer .....

(3)

(b)



(i) Find the equation of the line PQ.

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Answer .....

(1)

(ii) Write down **three** inequalities which together describe the shaded area.

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Answer .....

(3)

(Total 7 marks)

9. (a) Solve the inequality $3x - 5 \leq 5 - 2x$

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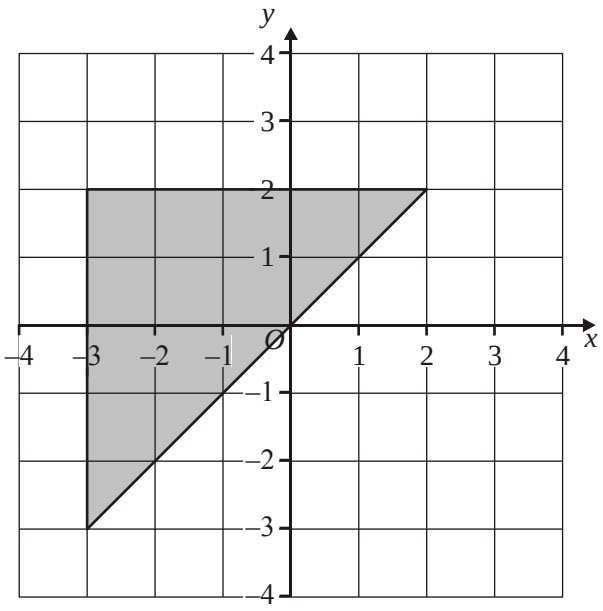
Answer .....

(2)

(b) The region R is shown shaded below.



Write down **three** inequalities which together describe the shaded region.

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Answer .....

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(3)

(Total 5 marks)