

Quadratic Inequalities

For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **28**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

1 Write down the solution of

(a) $x^2 < 25$

[1 mark]

Answer _____

(b) $x^2 \geq 49$

[1 mark]

Answer _____

2 Solve $x^2 - 5x + 6 \leq 0$

[3 marks]

Answer _____

3 Solve $x^2 + 3x - 10 > 0$

[3 marks]

Answer _____

4 How many integers satisfy $x^2 \leq 10$?

[2 marks]

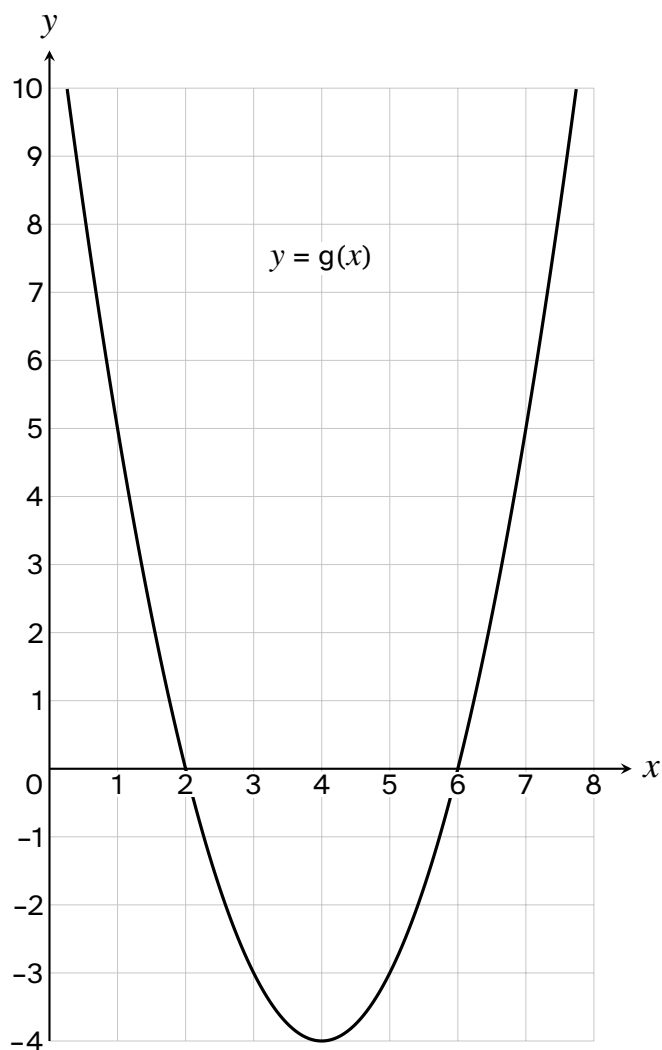
Answer _____

5 Solve $2x^2 - x - 3 \geq 0$
Give your answer in set notation.

[4 marks]

Answer _____

- 6 A curve $y = g(x)$ is drawn on the grid below.
 $g(x)$ is a quadratic expression.



- (a) Use the graph to work out how many integer values of x satisfy $g(x) \leq 0$
[2 marks]

Answer _____

- (b) Circle the solution of $g(x) > 5$

[1 mark]

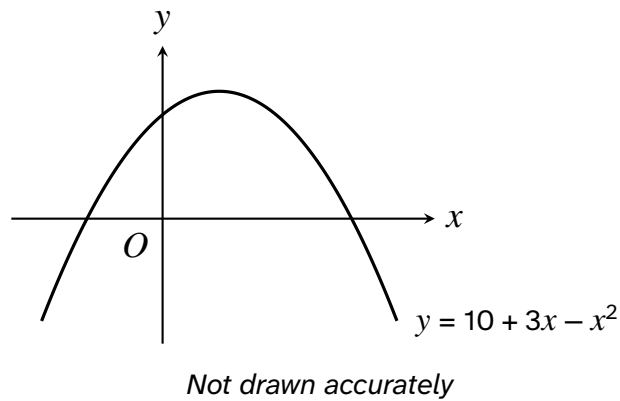
$1 < x < 7$

$x < 1$ or $x > 7$

$x > 7$

$x < 2$ or $x > 6$

- 7 Here is a sketch of the curve $y = 10 + 3x - x^2$

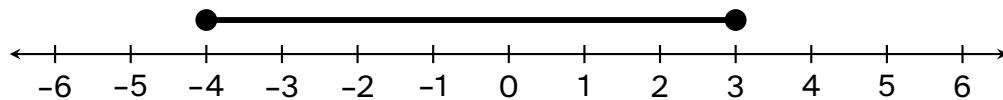


Solve $10 + 3x - x^2 \geq 0$

[3 marks]

Answer _____

- 8 The number line shows the solution of a quadratic inequality.



- (a) Write the solution shown on the number line as an inequality.

[1 mark]

Answer _____

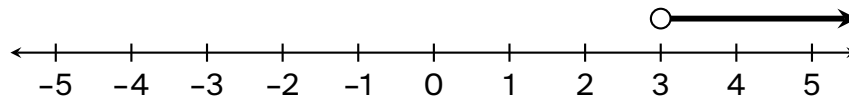
- (b) Kasia says the number line shows the solution of $x^2 - x - 12 \leq 0$
Is Kasia correct? Tick a box.
You must show your working.

[2 marks]

☐ Yes

☐ No

- 9 Priya has solved the inequality $x^2 > 9$ and represented her solution on the number line below.



Give **one** reason why her solution is wrong.

[1 mark]

- 10 Solve $3x^2 > 4 - 11x$

[4 marks]

Answer _____