HIGHER

2.9 Quadratic Inequalities: Solving and Graphing Regions: 10-minute Pack

EDEXCEL 4MA1 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 The region R is defined by the inequalities
$y \geq (x + 1)^2 - 2$ and $y \leq 3$
Find the number of points with integer coordinates that lie in R (including points on the boundary where the inequality allows it).

(Total for Question 1 is 4 marks)

2 Solve $x^2 - 7x - 18 \leq 0$

(Total for Question 2 is 3 marks)

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Mark scheme · 2.9 Quadratic Inequalities: Solving and Graphing Regions: 10-minute Pack

Question 1

finds where the curve meets the line $y = 3$: $(x + 1)^2 = 5$	**M1**
finds the possible integer x values, from the largest and smallest x with the curve not above the line	**M1**
counts the integer y values for each x: $x = -3$: 2, $x = -2$: 5, $x = -1$: 6, $x = 0$: 5, $x = 1$: 2	**M1**
total = 20	**A1**

Answer: 20

Question 2

factorises (or uses the formula) to find the critical values	**M1**
critical values $x = -2$ and $x = 9$	**A1**
$-2 \leq x \leq 9$	**A1**

Answer: $-2 \leq x \leq 9$

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