

Quadratic inequalities

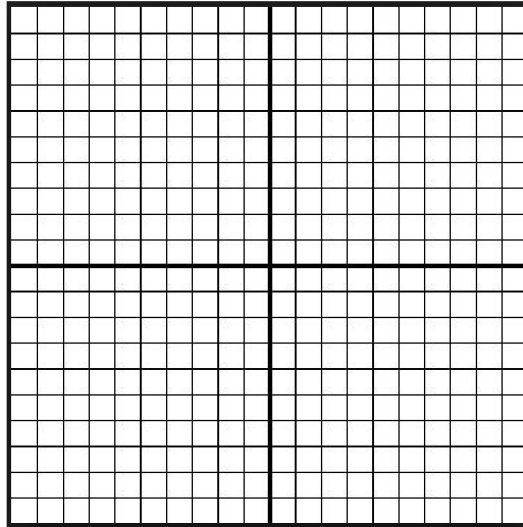
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1) Quadratic inequalities: Easier

1) a) Plot the graph of $y = x^2 - 4$ for $-3 \leq x \leq 3$



(2 Marks)

b) Using the graph, solve the inequality $x^2 - 4 \geq 0$

(2 Marks)

2) a) Factorise $x^2 + x - 6$

(2 Marks)

b) Solve $x^2 + x - 6 = 0$

(2 Marks)

1) Quadratic inequalities: Medium

c) Sketch the graph of $y = x^2 + x - 6$, showing where the graph cuts the x axis and y axis

(2 Marks)

d) Use your sketch to solve $x^2 + x - 6 \leq 0$

(2 Marks)

3) Solve $x^2 > 2x + 15$

(2 Marks)

4) Solve $6(1 - x^2) \leq -1$

(2 Marks)

1) Quadratic inequalities: Harder

- 5) James is making painted boxes. He wants the surface area of his boxes to be larger than 144cm^2 in order for his design to fit. He also wants the ratio of the side's lengths to be 1:2:2. Find an inequality that the shortest length must satisfy.

(3 Marks)

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- 6) Solve $x^2 + 4x > 2$ **and** $3(x^2 + 2) > -2x$

(3 Marks)