

chapter

7

## Algebra 3

## Section 7.2 Quadratic and rational inequalities

PROJECT MATHS

## Text &amp; Tests 6

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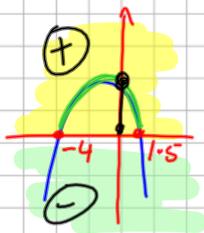
2. Solve each of the following inequalities for  $x$ :

(i)  $6 - x - x^2 \geq 0$

(ii)  $12 - 5x - 2x^2 > 0$

(iii)  $-2x^2 - 7x \geq 0$ .

Quadratic inequality

If  
then

$$\begin{aligned}
 12 - 5x - 2x^2 &= 0 && \text{ } x-1 \\
 2x^2 + 5x - 12 &= 0 && \\
 (2x - 3)(x + 4) &= 0 && \\
 \left. \begin{aligned} 2x - 3 &= 0 \\ x &= 3/2 \\ &= 1.5 \end{aligned} \right\} && x = -4
 \end{aligned}$$

Does 0 work?

$$12 - 5(0) - 2(0)^2 = 12 > 0 \quad \text{yes}$$

Since zero is inside  $\rightarrow$

$$-4 < x < 3/2$$