

Quadratic Inequalities

1 Find the set of values of x for which:

a $x^2 - 11x + 24 < 0$

b $12 - x - x^2 > 0$

c $x^2 - 3x - 10 > 0$

d $x^2 + 7x + 12 \geq 0$

e $7 + 13x - 2x^2 > 0$

f $10 + x - 2x^2 < 0$

g $4x^2 - 8x + 3 \leq 0$

h $-2 + 7x - 3x^2 < 0$

i $x^2 - 9 < 0$

j $6x^2 + 11x - 10 > 0$

k $x^2 - 5x > 0$

l $2x^2 + 3x \leq 0$

2 Find the set of values of x for which:

a $x^2 < 10 - 3x$

b $11 < x^2 + 10$

c $x(3 - 2x) > 1$

d $x(x + 11) < 3(1 - x^2)$

3 Find the set of values of x for which:

a $x^2 - 7x + 10 < 0$ and $3x + 5 < 17$

b $x^2 - x - 6 > 0$ and $10 - 2x < 5$

c $4x^2 - 3x - 1 < 0$ and $4(x + 2) < 15 - (x + 7)$

d $2x^2 - x - 1 < 0$ and $14 < 3x - 2$

e $x^2 - x - 12 > 0$ and $3x + 17 > 2$

f $x^2 - 2x - 3 < 0$ and $x^2 - 3x + 2 > 0$

4 a Find the range of values of k for which the equation $x^2 - kx + (k + 3) = 0$ has real roots.

b Find the range of values of p for which the roots of the equation $px^2 + px - 2 = 0$ are real.