

Learning Objective 1: To be able to factorise quadratic equations

Learning Objective 2: To be able to solve using the factorisation method

Extension Learning objective 3: To be able to link this to a graph

Part 1: Factorise the following expressions

Copy and complete

$x^2 + 5x + 6 =$ $(x + 2)(x +)$	$x^2 + 7x + 12 =$ $(x +)(x +)$	$x^2 + 4x + 4 =$ $(x +)(x +)$	$x^2 + 6x + 5 =$ $(x +)(x +)$
$x^2 + 3x - 10 =$ $(x + 5)(x -)$	$x^2 + 1x - 3 =$ $(x +)(x -)$	$x^2 + 2x - 3 =$ $(x +)(x -)$	$x^2 - 5x - 14 =$ $(x +)(x -)$
$x^2 - 5x + 6 =$ $(x - 2)(x -)$	$x^2 - 3x + 2 =$ $(x -)(x -)$	$x^2 - 7x + 12 =$ $(x -)(x -)$	$x^2 - 4x + 4 =$ $(x -)(x -)$

Now try and factorise these yourself:

$x^2 + 7x + 10$	$x^2 + 9x + 20$	$x^2 + 8x + 12$	$x^2 + 10x + 16$
$x^2 + 7x - 18$	$x^2 + 2x - 35$	$x^2 + 1x - 12$	$x^2 - 6x - 16$
$x^2 - 100$	$x^2 - 8x + 16$	$x^2 - 16$	$x^2 - 10x + 16$

Part 2: Use the above to help, solve the following equations

$x^2 + 5x + 6 = 0$	$x^2 + 7x + 12 = 0$	$x^2 + 4x + 4 = 0$	$x^2 + 6x + 5 = 0$
$x^2 + 3x - 10 = 0$	$x^2 + 1x - 3 = 0$	$x^2 + 2x - 3 = 0$	$x^2 - 5x - 14 = 0$
$x^2 - 5x + 6 = 0$	$x^2 - 3x + 2 = 0$	$x^2 - 7x + 12 = 0$	$x^2 - 4x + 4 = 0$

Part 3: Using the Laptops

Sketch the graphs and compare, carefully labelling the x and y intercepts

$y = x^2 + 5x + 6$	$y = x^2 + 7x + 12$	$y = x^2 + 4x + 4$	$y = x^2 + 6x + 5$
$y = x^2 + 3x - 10$	$y = x^2 + 1x - 3$	$y = x^2 + 2x - 3$	$y = x^2 - 5x - 14$
$y = x^2 - 5x + 6$	$y = x^2 - 3x + 2$	$y = x^2 - 7x + 12$	$y = x^2 - 4x + 4$