Mathematics

Solving adfected quadratic equations II

Mr Coward

Try this

Using substitution, find values of x that satisfy the equation.

$$x^2 + 7x - 18 = 0$$

$$(x - 3)(x + 5) = 20$$

Independent task

1) Solve the following equations

a) $x^2 + 5x + 4 = 0$ *b)* $x^2 + 10x + 9 = 0$ *c)* $0 = x^2 + 9x + 18$

d)$x^2 - 9x + 20 = 0$ *e)* $x^2 - 10x - 24 = 0$ *f)* $x^2 - 10x + 24 = 0$

g)$x^2 - 12x = 0$ *h)* $x^2 - 49 = 0$ *i)* $x^2 - 2x - 35 = 0$

Independent task

2) Some of the following are pure quadratic equations, and some are adfected quadratic equations. Solve them all.

a) $3a^2 + 5 = 17$ b) $b^2 - 4b + 4 = 0$ c) $c^2 - 4 = 0$ d) $d^2 = 4$

3) Did you use the same method for c and d on question 2? Or did you use different methods? How are the questions the same? How are they different? Which method works best?

4) How do you tell the difference between a pure and adfected equation?

Explore

Solve both quadratic equations

$$x^2 + 6x + 9 = 0$$

$$x^2 - 10x + 25 = 0$$

What do you notice? Can you find another set of equations like this?

Explore

Solve both quadratic equations

$$x^2 - 5x + 6 = 0$$

$$x^2 - 5x - 6 = 0$$

Notice how the are both solvable by factorisation, no matter the sign of the constant (positive or negative).