Mathematics

Solving adfected quadratic equations

Mr Coward

Try this

Find as many possible pairs of side lengths for each rectangle.

Area = 6 units squared	Area = 0 units squared

What do you notice?

Independent task

1) Solve the following equations

a) $(2x - 3)(5x - 2) = 0$

b) $(2x + 3)(5x + 2) = 0$

c) $0 = (x - 3)(x + 2)$

d) $0 = (3 - x)(2 + x)$

e) $(2x + 1)^2 = 0$

f) $0 = (1 - 4x)^2$

g) $x(3 + x) = 0$

h) $\frac{x}{5}(x + 7) = 0$

i) $(\frac{x}{4} + 7)(7 - \frac{x}{4}) = 0$

Independent task

2) What has gone wrong?

$$(2x - 6)(5x - 2) = 3$$

$2x - 6 = 3$ or $5x - 2 = 3$

$+6 \quad +6$ $\qquad$ $+2 \quad +2$

$\frac{2x}{2} = \frac{9}{2}$ or $\frac{5x}{5} = \frac{5}{5}$

$\underline{x = \frac{9}{2}}$ or $\underline{x = 1}$

3) The below shows a quintic equation, to the power 5.

a) How do you know it will have a power of 5?

b) Find all the solutions of the quantic.

$$x(x - 2)(2x + 3)(3x - 4)(4x + 5) = 0$$

c) This quantic has five unique solutions, create a quantic with less than 5 solutions

Explore

Zaki says this bracket will have two unique solutions because the brackets are different, show Zaki is incorrect.

$$(2x - 6)(3x - 9) = 0$$

Can you explain why the brackets give the same solution?

Can you find another bracket that would have worked to go with $(2x - 6)$?

Can you create your own question like this?