Mathematics

Solving adfected quadratic equations III

Mr Coward

Try this

Create three different quadratic equations with solutions $x = 11$ and $x = -5$.

Independent task

1) Solve the following equations

a) $x^2 + 9x = -18$

b) $x^2 + 7x + 8 = 2x + 2$

c) $5x + 24 = x^2$

d) $3x^2 + 2x - 20 = 2x^2 + 3x$

e) $-2x^2 + 8x = 9 - 3x^2$

f) $(x + 5)(x + 6) = 6$
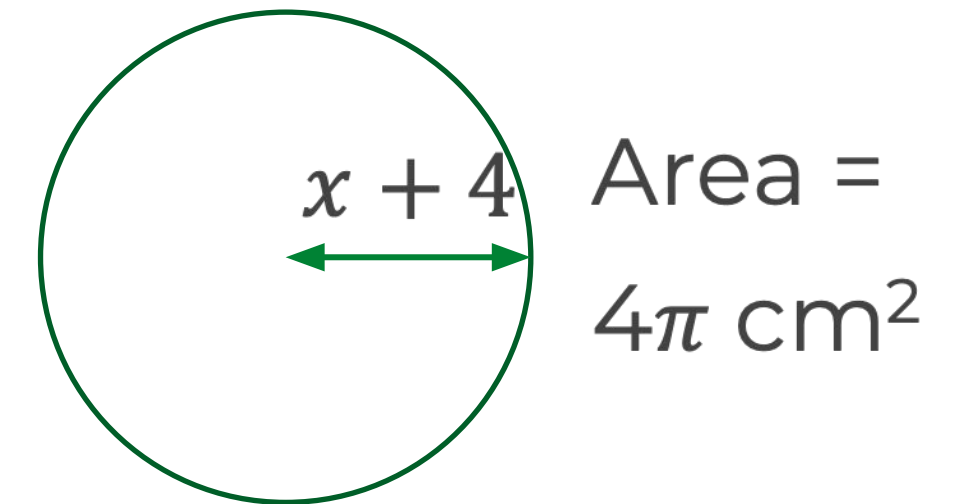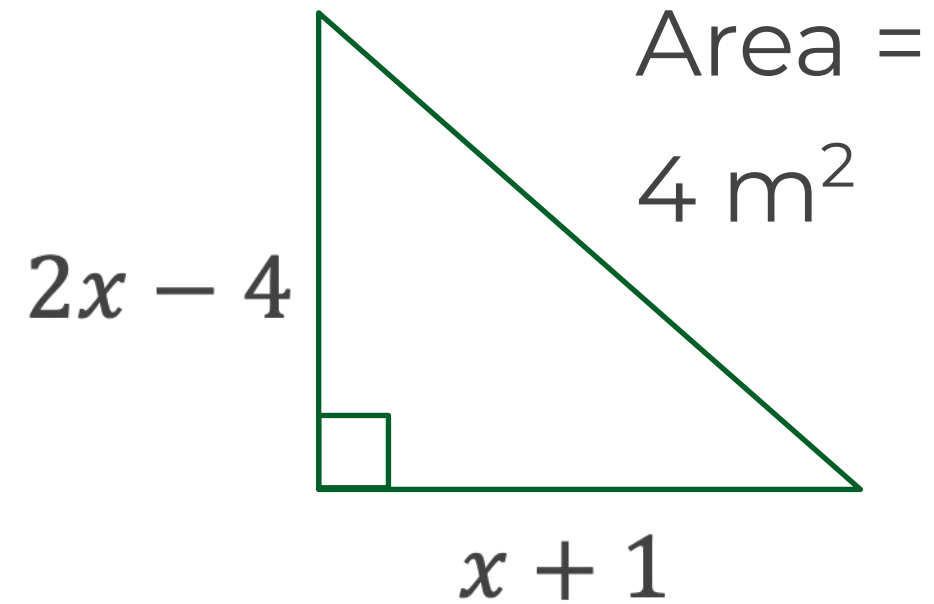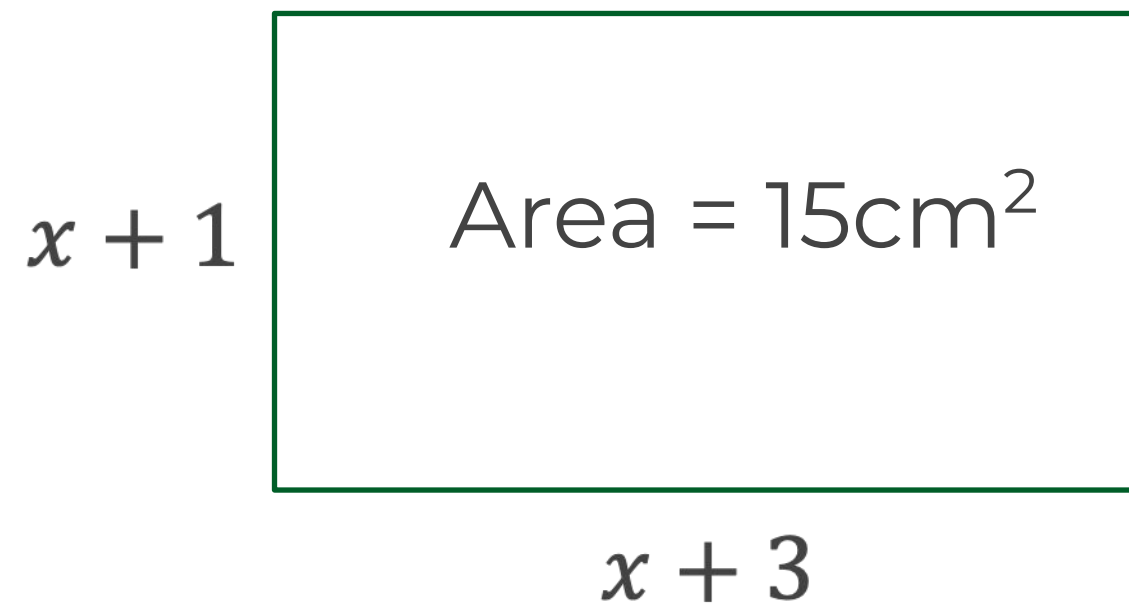
g) $(3x + 2)^2 = 8x^2 + 8x + 1$

h) $x = \dfrac{49}{x}$

i) $x + 5 = \dfrac{2(15-x)}{x}$

Independent task

2) Find the value of x by forming and solving quadratic equations.

Area = 15cm^2

$x + 1$

$x + 3$

Area = 4 m^2

$2x - 4$

$x + 1$

$x + 4$

Area = 4π cm^2

3) Find the perimeter of the shapes in question 2.

Explore

Solve the following quadratic equations

$$x^2 + 12x + 36 = 0$$
$$x^2 + 12x + 36 = 1$$
$$x^2 + 12x + 36 = 4$$
$$x^2 + 12x + 36 = 9$$
$$x^2 + 12x + 36 = 16$$
$$x^2 + 12x + 36 = 25$$
$$x^2 + 12x + 36 = 36$$
$$x^2 + 12x + 36 = 49$$

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