

1. Factual recall

Factorise

a) $x^2 + 10x$

b) $x^2 + 11x + 10$

Solve

c) $3x - 7 = x - 1$

2. Carry out a routine procedure

Solve

a) $x^2 - 5x = 0$

b) $x^2 - 17x - 60 = 0$

c) $3x^2 - 15x + 12 = 0$

d) $x^2 + 12x = 2x - 24$

3. Classify some mathematical object

By solving, which quadratic equation is the odd one out?

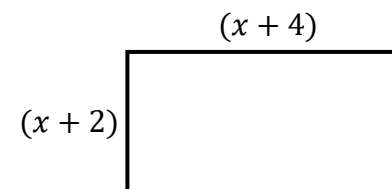
a) $x^2 + 10x + 21 = 0$

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

c) $4x^2 - 8x + 3 = 0$

4. Interpret a situation or answerThe following rectangle has an area of 120cm^2 .

Solving algebraically find the lengths of the rectangle.

**Solving quadratic equations through factorisation****5. Prove, show, justify**

Given that

$$4x^2 - 4xy + y^2 = 0$$

Show that

$$x : y = 1 : 2$$

6. Extend a concept

A cubic equation can be written as

$$(2x^2 - 7x - 4)(x + 4) = 0$$

Solve the cubic equation.

7. Construct an instance

A quadratic equation has solutions

$$x = 8, x = -2.$$

Construct a quadratic equation with these solutions.

8. Criticise a fallacy

A student attempts to solve the following quadratic equation, find and amend any errors.

$$\begin{array}{l}
 2x^2 + 14x + 12 = 0 \\
 \div 2 \swarrow \quad \searrow \div 2 \\
 x^2 + 7x + 6 = 0
 \end{array}$$

$$(x + 6)(x + 1) = 0$$

$$x = 6$$

$$x = 1$$