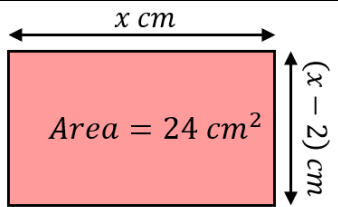
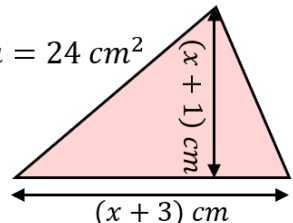
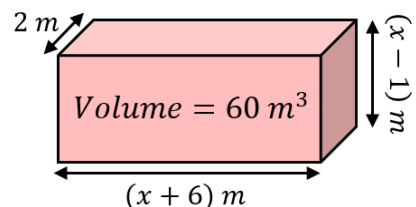
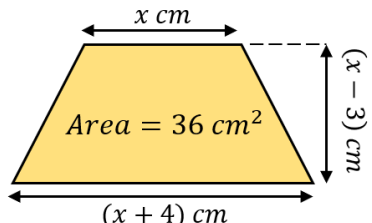
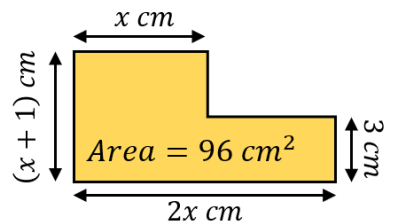
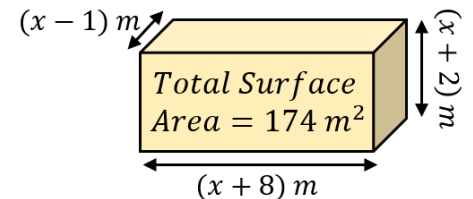


Solving Quadratic Equations Problems

(a)	(b)	(c)
<div style="text-align: center;">  </div> <p>(i) Show that $x^2 - 2x - 24 = 0$</p> $A = l \times w$ $x(x - 2) = 24$ $x^2 - 2x = 24$ $x^2 - 2x - 24 = 0$ <p>(ii) Hence find the length and width of the rectangle.</p> $(x - 6)(x + 4) = 0$ $x = 6, x = -4 \text{ but } x > 0 \text{ so } x = 6$ $l = 6 \text{ cm}, w = 4 \text{ cm}$	<div style="text-align: center;">  </div> <p>(i) Show that $x^2 + 4x - 45 = 0$</p> $A = \frac{b \times h}{2} \quad \frac{(x + 1)(x + 3)}{2} = 24$ $x^2 + 4x + 3 = 48$ $x^2 + 4x - 45 = 0$ <p>(ii) Hence find the width and height of the triangle.</p> $(x + 9)(x - 5) = 0$ $x = -9, x = 5 \text{ but } x > 0 \text{ so } x = 5$ $b = 8 \text{ cm}, h = 6 \text{ cm}$	<div style="text-align: center;">  </div> <p>(i) Show that $x^2 + 5x - 36 = 0$</p> $V = l \times w \times h$ $2(x - 1)(x + 6) = 60$ $x^2 + 5x - 6 = 30$ $x^2 + 5x - 36 = 0$ <p>(ii) Hence find the dimensions of the cuboid.</p> $(x + 9)(x - 4) = 0$ $x = -9, x = 4 \text{ but } x > 0 \text{ so } x = 4$ $l = 10 \text{ m}, w = 2 \text{ m}, h = 3 \text{ m}$
(d)	(e)	(f)
<p>Find the value of x and hence the dimensions of the trapezium. Show clear algebraic working.</p> <div style="text-align: center;">  </div> $\frac{x + x + 4}{2} \times (x - 3) = 36$ $x^2 - x - 42 = 0$ $(x - 7)(x + 6) = 0$ $x = 7, \text{ Dimensions are } 11\text{cm}, 7\text{cm}, 4 \text{ cm}$	<p>Find the value of x and hence the dimensions of the compound shape. Show clear algebraic working.</p> <div style="text-align: center;">  </div> $x(x + 1) + 3 \times x = 96$ $x^2 + 4x - 96 = 0$ $(x + 12)(x - 8) = 0$ $x = 8$ $\text{Dimensions are } 8 \text{ cm}, 9 \text{ cm and } 16 \text{ cm}$	<p>Find the value of x and hence the dimensions of the cuboid. Show clear algebraic working.</p> <div style="text-align: center;">  </div> $2(x - 1)(x + 2) + 2(x - 1)(x + 8) + 2(x + 2)(x + 8) = 174$ $x^2 + 6x - 27 = 0$ $(x + 9)(x - 3) = 0$ $x = 3$ $\text{Dimensions are } 2 \text{ m}, 5 \text{ m}, 11 \text{ m}$