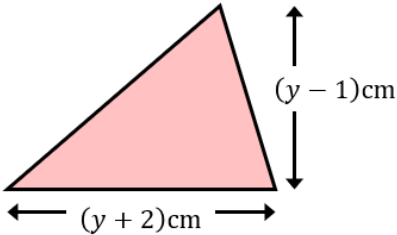
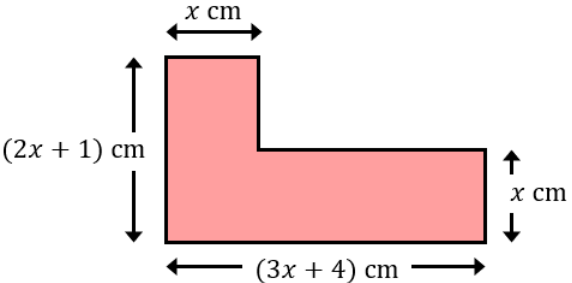
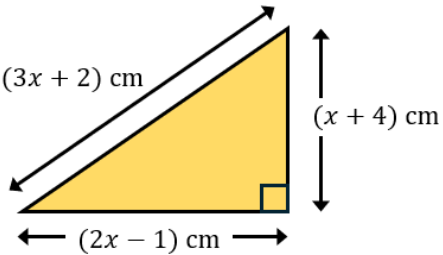
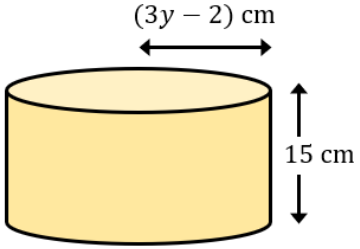


Quadratic Formula Problems in Context

<p>(a)</p> <p>A rectangle has a width of $(x + 4)$ cm, a length of $(x + 1)$ cm and an area of 20 cm^2. Show that $x^2 + 5x - 16 = 0$ and hence find the value of x to 1 decimal place.</p> <p style="color: red; text-align: center;">$x = 2.2$</p>	<p>(b)</p> <p>The triangle shown has an area of 32 cm^2. Show that $y^2 + y - 66 = 0$ and hence find the base and height of the triangle, both to 1 decimal place.</p> <div style="text-align: center;">  </div> <p style="color: red; text-align: center;">$b = 9.6 \text{ cm}$ and $h = 9.6 \text{ cm}$</p>	<p>(c)</p> <p>The area of the compound shape is 80 cm^2. By forming and solving a quadratic equation, find the value of x to 1 decimal place.</p> <div style="text-align: center;">  </div> <p style="color: red; text-align: center;">$x = 3.9$</p>
<p>(d)</p> <p>The right-angled triangle has sides of length $(x + 4)$, $(2x - 1)$ and $(3x + 2)$ cm. Show that $4x^2 + 8x - 13 = 0$ and hence find the lengths of the sides of the triangle.</p> <div style="text-align: center;">  </div> <p style="color: red; text-align: center;">$5.1 \text{ cm}, 1.1 \text{ cm}$ and 5.2 cm</p>	<p>(e)</p> <p>Kalia thinks of a positive irrational number, which she rounds to 2 decimal places. When she squares the number then doubles it, it is 1.0752 more than four times the number. By forming and solving a quadratic equation, find the number to 2 decimal places and the original irrational number Kalia thought of.</p> <p style="color: red; text-align: center;">$2x^2 - 4x - 1.0752 = 0$</p> <p style="color: red; text-align: center;">$x = 2.24$ $x = \sqrt{5}$</p>	<p>(f)</p> <p>The total surface area of the cylinder shown is $300\pi \text{ cm}^2$. By forming and solving an equation in y, find the radius of the cylinder to 2 decimal places.</p> <div style="text-align: center;">  </div> <p style="color: red; text-align: center;">$18y^2 + 66y - 352 = 0$ $y = 2.95$ $r = 6.85 \text{ cm}$</p>