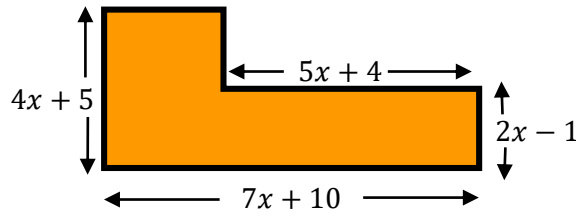




Timester Challenge

Quadratic Formula



<p>Circle the quadratic formula.</p> $\frac{-b}{2a} \pm \sqrt{b^2 - 4ac}$ $\frac{b \pm \sqrt{b^2 - 4ac}}{2a}$ $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $\frac{-b \pm \sqrt{b - 4ac}}{2a}$ $b \pm \frac{\sqrt{b^2 - 4ac}}{2a}$ <p style="text-align: right;">Bronze ★</p>	<p>Solve $x^2 + 6x - 17 = 0$ Give your solution correct to 3 significant figures.</p> <p style="text-align: right;">Silver ★</p>	<p>The diagram below shows a 6-sided shape. All the corners are right angles. All measurements are given in centimetres.</p>  <p>The area of the shape is 30cm^2</p> <p>a) Show that $18x^2 + 37x - 4 = 0$</p> <p>b) Hence work out the longest side of the shape.</p>
<p>Use the formula method to solve the equation $3x^2 + 2x - 7 = 0$. Give you solution correct to two decimal places.</p> <p style="text-align: right;">Bronze ★</p>	<p>Solve $2x^2 - 11x - 4 = 0$ Give your solution correct to 3 significant figures.</p> <p style="text-align: right;">Silver ★</p>	<p style="text-align: right;">Gold ★</p>



Timester Challenge

Quadratic Formula

Answers



<p>Circle the quadratic formula.</p> $\frac{-b}{2a} \pm \sqrt{b^2 - 4ac}$ $\frac{b \pm \sqrt{b^2 - 4ac}}{2a}$ $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $\frac{-b \pm \sqrt{b - 4ac}}{2a}$ $b \pm \frac{\sqrt{b^2 - 4ac}}{2a}$ <p style="text-align: right;">Bronze ★</p>	<p>Solve $x^2 + 6x - 17 = 0$ Give your solution correct to 3 significant figures.</p> <p>$a = 1, b = 6$ and $c = -17$</p> $x = \frac{-6 \pm \sqrt{6^2 - 4 \times 1 \times -17}}{2 \times 1}$ $x = \frac{-6 \pm \sqrt{36 + 68}}{2}$ $x = \frac{-6 - \sqrt{104}}{2} = -8.10$ $x = \frac{-6 + \sqrt{104}}{2} = 2.10$ <p style="text-align: right;">Silver ★</p>	<p>The diagram below shows a 6-sided shape. All the corners are right angles. All measurements are given in centimetres.</p> <p style="text-align: center;">$2x + 6 = (7x + 10) - (5x + 4)$</p> <p>The area of the shape is 30cm^2</p> <p>a) Show that $18x^2 + 37x - 4 = 0$</p> <p>Area A = $(2x + 6)(4x + 5) = 8x^2 + 34x + 30$</p> <p>Area B = $(2x - 1)(5x + 4) = 10x^2 + 3x - 4$</p> <p>Area A+B = $8x^2 + 34x + 30 + 10x^2 + 3x - 4 = 18x^2 + 37x + 26$</p> <p>$18x^2 + 37x + 26 = 30$</p> <p>$18x^2 + 37x - 4 = 0$</p> <p>b) Hence work out the longest side of the shape.</p> <p>$a = 18, b = 37$ and $c = -4$</p> $x = \frac{-37 \pm \sqrt{37^2 - 4 \times 18 \times -4}}{2 \times 18}$ $x = \frac{-37 \pm \sqrt{1657}}{36}$ <p>$x = -2.159$ or $x = 0.103$ x has to be positive So longest side $7x + 10$ $= 7 \times (0.103) + 10$ $= 10.721\text{cm}$ Gold ★</p>
<p>Use the formula method to solve the equation $3x^2 + 2x - 7 = 0$. Give your solution correct to two decimal places.</p> <p>$a = 3, b = 2$ and $c = -7$</p> $x = \frac{-2 \pm \sqrt{2^2 - 4 \times 3 \times -7}}{2 \times 3}$ $x = \frac{-2 \pm \sqrt{4 + 84}}{6}$ $x = \frac{-2 - \sqrt{88}}{6} = -1.23$ $x = \frac{-2 + \sqrt{88}}{6} = 1.90$ <p style="text-align: right;">Bronze ★</p>	<p>Solve $2x^2 - 11x - 4 = 0$ Give your solution correct to 3 significant figures.</p> <p>$a = 2, b = -11$ and $c = -4$</p> $x = \frac{11 \pm \sqrt{-11^2 - 4 \times 2 \times -4}}{2 \times 2}$ $x = \frac{11 \pm \sqrt{121 + 32}}{4}$ $x = \frac{11 - \sqrt{153}}{4} = -0.342$ $x = \frac{11 + \sqrt{153}}{4} = 5.84$ <p style="text-align: right;">Silver ★</p>	