

<p>2nd January</p> <p>Solve the simultaneous equations</p> <p>① <math>y = x^2 - 1</math> →</p> <p>② <math>x = 5 - y</math></p>	<p>Sub <math>x</math> into <math>y</math> (② into ①)</p> <p><math>y = (5-y)^2 - 1</math></p> <p><math>y = 25 - 10y + y^2 - 1</math></p> <p><math>y^2 - 11y + 24 = 0</math></p> <p><math>(y-8)(y-3) = 0</math></p> <p><math>y = 8</math> or <math>y = 3</math></p> <p><math>x = -3</math> or <math>x = 2</math></p> <p><math>(-3, 8)</math> and <math>(2, 3)</math></p> <p>Corbettmaths</p>
<p>Work out</p> <p><math>\sqrt{200} + \sqrt{50}</math></p> <p><math>\sqrt{100 \times 2} = 10\sqrt{2}</math></p> <p><math>\sqrt{25 \times 2} = 5\sqrt{2}</math></p>	<p><math>\sqrt{200} + \sqrt{50}</math></p> <p><math>= 10\sqrt{2} + 5\sqrt{2}</math></p> <p><math>= 15\sqrt{2}</math></p>
<p>Sketch <math>y = \sin x</math> for <math>0 &lt; x &lt; 360</math>.</p>	<p><math>y = \sin(x)</math></p>
<p>Solve <math>x^2 - 2x - 15 &gt; 0</math></p> <p><math>(x-5)(x+3) &gt; 0</math></p> <p>Key <math>x</math>-intercepts at <math>x=5</math> and <math>x=-3</math></p>	<p><math>y = x^2 - 2x - 15</math></p> <p>Greater than 0 in shaded areas</p> <p><math>\therefore x &lt; -3</math> and <math>x &gt; 5</math></p>
<p>Find the <math>n</math>th term of</p> <p>10, 12, 16, 22, 30... ..</p> <p><math>+2 \quad +4 \quad +6 \quad +8</math></p> <p><math>+2 \quad +2 \quad +2</math></p> <p>Second difference = 2 <math>\therefore</math> coefficient of <math>n^2 = 1</math></p>	<p>10, 12, 16, 22, 30</p> <p><math>n^2</math>: 1, 4, 9, 16, 25</p> <p>Residue: 9, 8, 7, 6, 5</p> <p><math>-1 \quad -1 \quad -1 \quad -1</math></p> <p><math>5 : -n + 10</math></p> <p><math>\therefore U_n = n^2 - n + 10</math></p>