
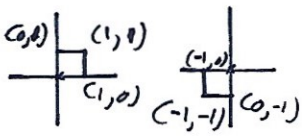


26th April	
Expand and simplify $(1 + 2\sqrt{3})^3$ $(1 + 2\sqrt{3})(1 + 2\sqrt{3})$ $1 + 4\sqrt{3} + 12 = (13 + 4\sqrt{3})$	 Corbettmaths $(1 + 2\sqrt{3})(13 + 4\sqrt{3})$ $13 + 4\sqrt{3} + 26\sqrt{3} + 24$ $37 + 30\sqrt{3}$
$(x + 1)$ is a factor of $x^3 - 2x^2 + 3x + a$ Work out the value of a $f(x) = x^3 - 2x^2 + 3x + a$ $f(-1) = 0$	$-1 - 2 - 3 + a = 0$ $-6 + a = 0$ $a = 6$
$3^x = 9\sqrt{3}$ and $3^y = \frac{1}{\sqrt{3}}$ Work out 3^{x-y} $3^x = 3^2 \times 3^{0.5}$ $x = 2.5$ $= 3^{2.5}$	$3^y = 3^{-0.5}$ $y = -0.5$ $3^{2.5 - (-0.5)}$ $3^3 = 27$
For what values of x is $y = -x^2 - 7x + 12$ an increasing function? $\frac{dy}{dx} = -2x - 7$	$-2x - 7 > 0$ $-2x > 7$ $x < -\frac{7}{2}$
Work out the matrix that transforms the unit square by a 180° rotation about O . $\begin{pmatrix} a & b \\ c & d \end{pmatrix} \begin{pmatrix} 1 \\ 0 \end{pmatrix} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$ When $b = 0$ $d = -1$ $\begin{pmatrix} a & 0 \\ c & -1 \end{pmatrix} \begin{pmatrix} 1 \\ 0 \end{pmatrix} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$ $a = -1$ $c = 0$	 $\begin{pmatrix} -1 & 0 \\ 0 & -1 \end{pmatrix}$