
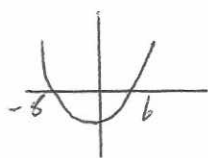


<p>20th October</p> <p style="text-align: right;"> Corbettmaths</p>	
<p>Work out the range of values of x for which</p> $x^2 + 2x - 48 \geq 0$ $(x + 8)(x - 6)$	 $x \leq -8 \text{ or } x \geq 6$
<p>Write $2x^2 - 13x + 1$ in the form $a(x + b)^2 + c$</p> $2\left[x^2 - \frac{13}{2}x + \frac{1}{2}\right]$ $2\left[\left(x - \frac{13}{4}\right)^2 - \frac{169}{16} + \frac{1}{2}\right]$ $2\left[\left(x - \frac{13}{4}\right)^2 - \frac{161}{16}\right]$	$2\left(x - \frac{13}{4}\right)^2 - \frac{161}{8}$
<p>A curve has the equation $y = x^3 + ax^2 - 8$ where a is a constant.</p> <p>The gradient of the curve when $x = 2$ is eleven times the gradient of the curve when $x = -2$</p> <p>Work out the value of a</p> $\frac{dy}{dx} = 3x^2 + 2ax$	<p>When $x = 2$</p> $\frac{dy}{dx} = 12 + 4a$ <p>When $x = -2$</p> $\frac{dy}{dx} = 12 - 4a$ $11(12 - 4a) = 12 + 4a$ $132 - 44a = 12 + 4a$ $120 = 48a$ $120 = 48a$ $a = \frac{5}{2}$
<p>Expand and simplify</p> $(2x - 1)^6$ $(2x)^6 + 6(2x)^5(-1) + 15(2x)^4(-1)^2 + 20(2x)^3(-1)^3 + 15(2x)^2(-1)^4 + 6(2x)(-1)^5 + (2x)(-1)^6$ $64x^6 - 192x^5 + 240x^4 - 160x^3 + 60x^2 - 12x + 1$	$64x^6 - 192x^5 + 240x^4 - 160x^3 + 60x^2 - 12x + 1$

$$\begin{matrix} & & 1 & & & & \\ & & 1 & & 1 & & \\ & & 1 & & 2 & & 1 \\ & & 1 & & 3 & & 3 & & 1 \\ & & 1 & & 4 & & 6 & & 4 & & 1 \\ & & 1 & & 5 & & 10 & & 10 & & 5 & & 1 \\ & & 1 & & 6 & & 15 & & 20 & & 15 & & 6 & & 1 \end{matrix}$$