

27th July

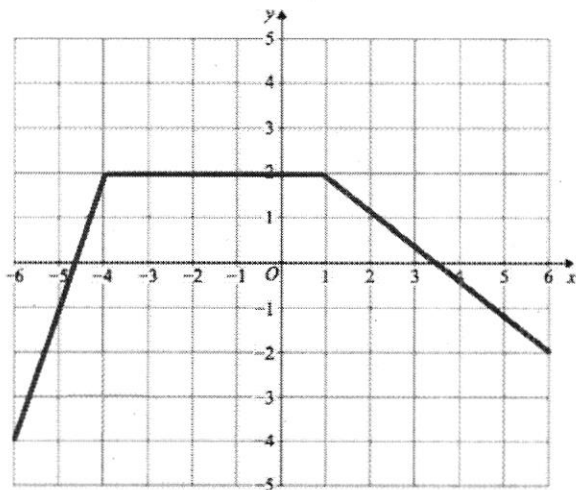


Corbettmaths

Expand and simplify

$$(x-3)(x-4)^2$$

$$\begin{aligned} &= (x-3)(x^2-8x+16) \\ &= x^3-8x^2+16x-3x^2+24x-48 \\ &= \underline{x^3-11x^2+40x-48} \end{aligned}$$

Define  $f(x)$ , stating clearly the domain for each part.

$$\begin{aligned} f(x) &= 3x+14 & -6 \leq x < -4 \\ &= 2 & -4 \leq x < 1 \\ &= -\frac{4}{5}x + \frac{14}{5} & 1 \leq x \leq 6 \end{aligned}$$

Solve

$$5\cos x = 1 + 2\sin^2 x$$

for  $0^\circ < x < 360^\circ$ 

$$\begin{aligned} 5\cos x &= 1 + 2(1 - \cos^2 x) \\ 5\cos x &= 3 - 2\cos^2 x \\ 0 &= 2\cos^2 x + 5\cos x - 3 \\ 0 &= (2\cos x - 1)(\cos x + 3) \\ \cos x &= \frac{1}{2}, \cos x = -3 \\ \underline{x = 60^\circ, 300^\circ} \end{aligned}$$