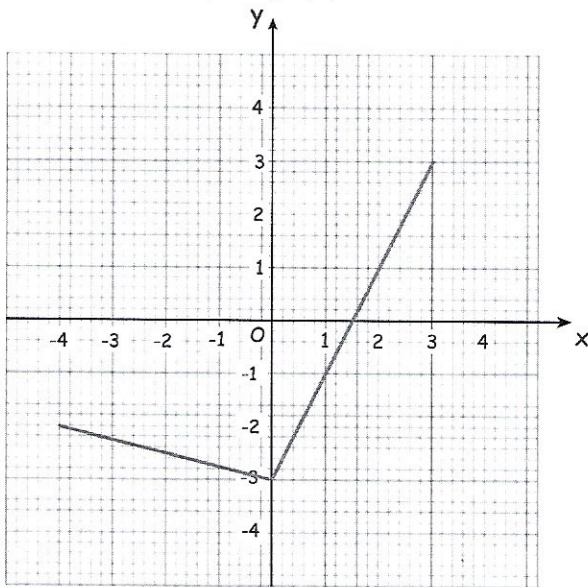


10th February



Corbettmaths

The graph of  $y = f(x)$  is shown below.Write down the domain of  $f(x)$ 

$$-4 \leq x \leq 3$$

Write down the range of  $f(x)$ 

$$-3 \leq f(x) \leq 3$$

The line  $L_1$  passes through the points  $A(-4, 2)$  and  $B(11, 7)$   $m = \frac{7-2}{11+4} = \frac{1}{3}$

The line  $L_2$  is parallel to  $L_1$  and passes through the point  $C(5, 0)$

The line  $L_3$  is perpendicular to  $L_2$  and passes through the point  $D(-3, 8)$   $m = -3$

The lines  $L_2$  and  $L_3$  intersect at the point  $E$ .

$O(0,0)$   $C(5,0)$   $E(0.2, -1.6)$   
Find the area of triangle  $OCE$

$$\frac{1}{2} \times 5 \times 1.6 = 4$$

$$L_2 \quad y = \frac{1}{3}x + c$$

$$0 = \frac{5}{3} + c \quad y = \frac{1}{3}x - \frac{5}{3}$$

$$L_3 \quad y = -3x + c$$

$$8 = 9 + c \quad y = -3x - 1$$

$$c = -1$$

$$\frac{1}{3}x - \frac{5}{3} = -3x - 1$$

$$x - 5 = -9x - 3$$

$$10x = 2$$

$$x = 0.2$$

$$y = -1.6$$

$$y = 6x^7 - \frac{4}{x^3}$$

$$y = 6x^7 - 4x^{-3}$$

Work out  $\frac{dy}{dx}$ 

$$\frac{dy}{dx} = 42x^6 + 12x^{-4}$$

$$\frac{dy}{dx} = 42x^6 + \frac{12}{x^4}$$