

17th December



Corbettmaths

Write  $(3 - 7\sqrt{6})(5 - \sqrt{6})$  in the form  $a + b\sqrt{6}$  where **a** and **b** are integers.

$$15 - 3\sqrt{6} - 35\sqrt{6} + 42$$

$$57 - 38\sqrt{6}$$

Solve

$$x^{-\frac{3}{4}} = 3\frac{3}{8}$$

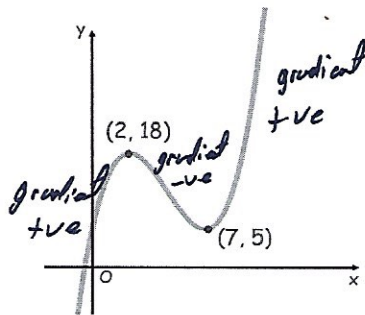
$$x^{-\frac{3}{4}} = \frac{27}{8}$$

$$x^{\frac{3}{4}} = \frac{8}{27}$$

$$x^{\frac{1}{4}} = \frac{2}{3}$$

$$x = \frac{16}{81}$$

Shown below is the graph of  $y = f(x)$   
The point (2, 18) is a maximum point and the point (7, 5) is a minimum point.



~~gradient +ve~~ ~~gradient -ve~~ ~~gradient +ve~~

~~gradient~~

$$x < 2 \quad \text{or} \quad x > 7$$

Write down the range of values of  $x$  for which  $f(x)$  is an increasing function.

$$y = ax^3 - x^2$$

Given  $\frac{d^2y}{dx^2} = -9.5$  when  $x = -\frac{1}{4}$

Find **a**

$$\boxed{5}$$

$$\frac{dy}{dx} = 3ax^2 - 2x$$

$$\frac{d^2y}{dx^2} = 6ax - 2$$

$$-9.5 = -1.5a - 2$$

$$-7.5 = -1.5a$$

$$a = 5$$