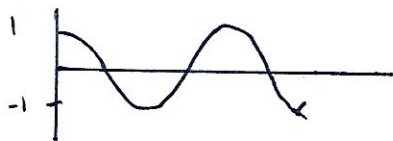


6th May



Corbettmaths

Write down the exact value of  $\cos 540^\circ$ 

-1

The first two terms in a linear sequence are  $-3 + 2\sqrt{6}$  and  $\sqrt{6}$ 

What is the fourth term in the sequence?

$$\begin{array}{ccc} & \xrightarrow{+3-\sqrt{6}} & 3 \xrightarrow{+3-\sqrt{6}} & 6-\sqrt{6} \\ & & & \end{array}$$

$$6 - \sqrt{6}$$

A  $(-5, -2)$  and  $B(31, -20)$  are joined by a straight line.

P is a point on AB.

AP : PB is 7 : 2

$$7+2=9$$

$$36 \div 9 = 4$$

$$4 \times 7 = 28$$

$$-18 \div 9 = -2$$

$$-2 \times 7 = -14$$

$$\vec{AB} = \begin{pmatrix} 36 \\ -18 \end{pmatrix}$$

Work out the coordinates of the point P.

$$\vec{AP} = \begin{pmatrix} 28 \\ -14 \end{pmatrix}$$

$$(23, -16)$$

A curve has the equation  $y = x^3 + ax^2 - 8$  where  $a$  is a constant.The gradient of the curve when  $x = 2$  is eleven times the gradient of the curve when  $x = -2$ Work out the value of  $a$ 

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

$$\text{when } x=2 \quad \frac{dy}{dx} = 12 + 4a$$

$$x=-2 \quad \frac{dy}{dx} = (12 - 4a)$$

$$11(12 - 4a) = 12 + 4a$$

$$132 - 44a = 12 + 4a$$

$$48a = 120$$

$$a = \frac{5}{2}$$