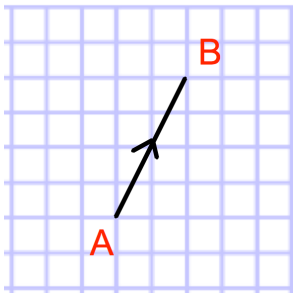


**5th August**

Corbettmaths



$$\vec{AB} = \begin{pmatrix} 2 \\ 4 \end{pmatrix}$$

Write down a vector that is perpendicular to AB and twice the length

a is directly proportional to  $\sqrt{c}$ .  
w is inversely proportional to  $a^3$ .

When  $c = 49$ ,  $a = 35$

When  $a = 2$ ,  $w = 16$ .

Find the value of w when  $c = 4$ .

The population of birds living on an island is decreasing exponentially.

Martin has begun to monitor the population each year.

Year 6 - Population 8000

Year 8 - Population 4000

What was the population in Year 2?

Two ships, A and B, leave a port at midday.

A travels on a bearing of  $095^\circ$  at a speed of 18km/h.

B travels on a bearing of  $113^\circ$  at a speed of y km/h.

At 14:00 the distance between A and B is 30km.

Boat B was travelling at a slower speed than boat A

Work out y, the speed of boat B.