



Show that

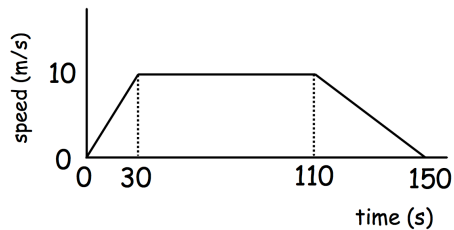
$$(n + 5)^2 - (n - 5)^2$$

is positive for all positive values of n .

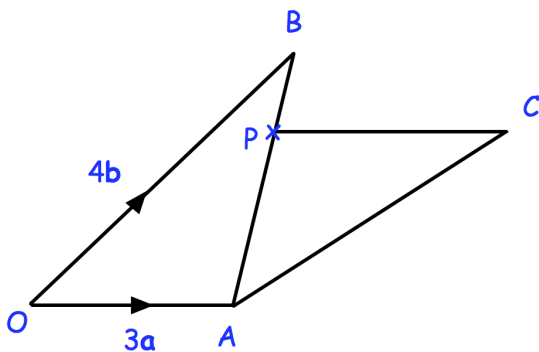
A group of students want to estimate how many woodlice live in a greenhouse. They catch and mark 20 woodlice. They return the 20 woodlice to the greenhouse. They then catch 50 woodlice and 11 are marked

Estimate the number of woodlice in the greenhouse.

A train takes 150 seconds to travel between station A and station B.



Work out the average speed during the 150 second journey.



$$\vec{OA} = 3\mathbf{a}$$

$$\vec{OB} = 4\mathbf{b}$$

$$\vec{PC} = 1.5\vec{OA}$$

P is a point on \vec{AB} such that $AP : PB = 3 : 1$

Find the vector \vec{OC} in terms of \mathbf{a} and \mathbf{b}