

Science 10
Vectors Test
Solutions.

1. scalar, vector

2.

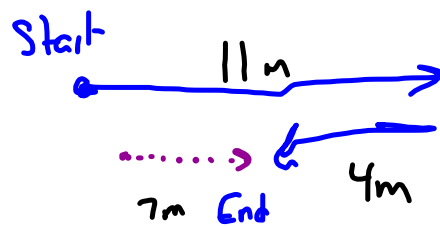
- a) scalar
- b) scalar
- c) vector
- d) vector
- e) vector
- f) scalar

3. position → Where you are in relation to a reference point.

displacement → Change in position

→ distance → Start to finish
With direction

4.



$$a) \text{ distance} = 11\text{m} + 4\text{m} = 15\text{m}$$

$$b) \text{ displacement} = 7\text{m East}$$



$$c) \text{ Average speed} = \frac{\text{distance}}{\text{time}} = \frac{15\text{m}}{6\text{sec}} = 2.5 \text{ m/s}$$

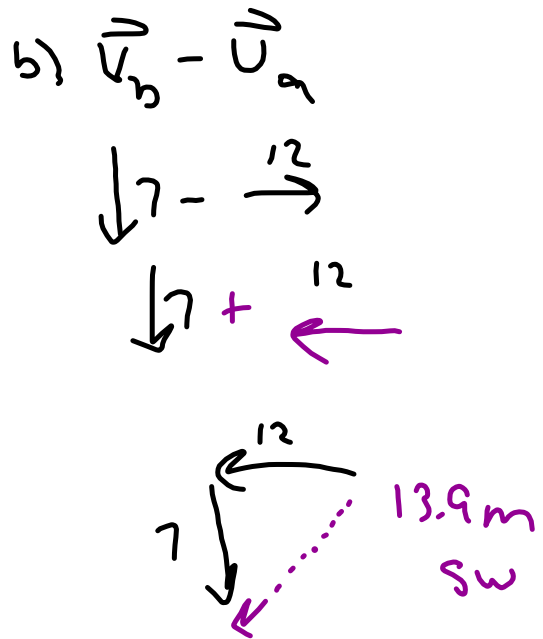
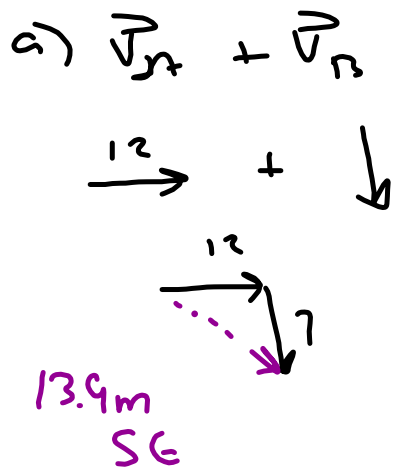
$$d) \text{ Average velocity} = \frac{\text{displacement}}{\text{time}} = \frac{7\text{m East}}{6\text{sec}} = 1.2 \text{ m/s East}$$


5. $\vec{v}_a = 11\text{m North } \uparrow^{11}$
 $v_b = 3\text{m South } \downarrow^3$


a) $\vec{v}_a + \vec{v}_b$
 $11\text{m North} + 3\text{m South}$
 $11\uparrow + \downarrow^3$
 $8\text{m } \uparrow$
 8m North


b) $\vec{v}_a - \vec{v}_b$
 $11\uparrow - \downarrow^3$
 $11\uparrow + \uparrow^3$
 14m North

b, $\vec{V}_a = 12\text{m East}$ 
 $\vec{V}_b = 7\text{m South}$ 



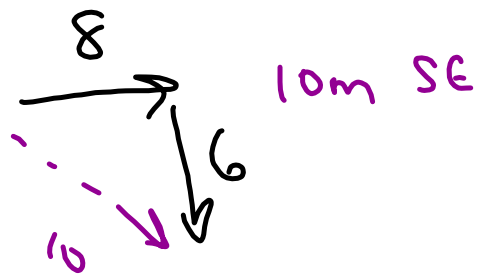
1. $\vec{v}_A = 12\text{m East}$ 

$\vec{v}_B = 4\text{m West}$ 


$\vec{v}_C = 6\text{m South}$ 

$$\vec{v}_A + \vec{v}_B + \vec{v}_C$$

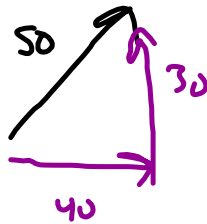
$$\begin{array}{c} \xrightarrow{12} + \xleftarrow{4} + \downarrow 6 \\ \xrightarrow{8} + \downarrow 6 \end{array}$$



B. $\vec{V}_A = 50 \text{ m } E 37 N$

$50 \cos 37 = 40 \rightarrow$ 

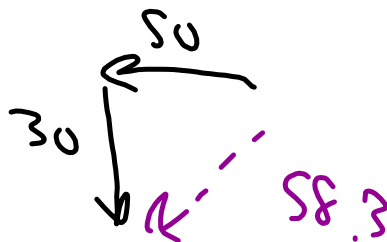
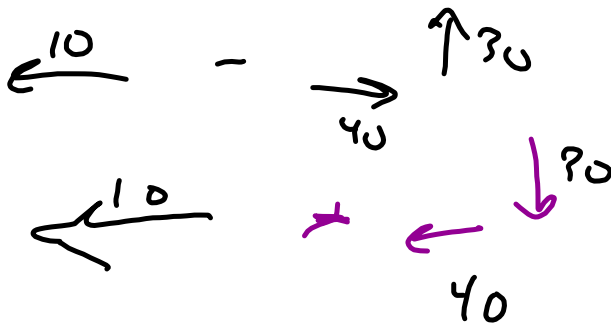
$50 \sin 37 = 30 \rightarrow$ 



$\vec{V}_B = 10 \text{ m west} =$ 

$\vec{V}_B - \vec{V}_A$

$10 \text{ m west} - 50 \text{ m } E 37 N$



58.3 m SW