

7.2 Adding and Subtracting Vectors

Triangle Method: This is where the vectors are drawn tip to tail and the resultant is the hypotenuse.

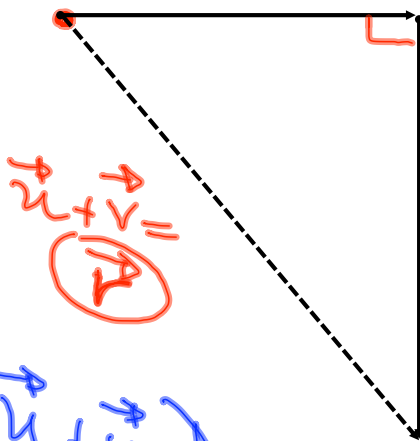
Answer
Vector.

Only works for Right Δ .

Naming Vectors: \vec{u} , \vec{v}

\vec{u} : 5cm [E]
 \vec{u}

\vec{v} : 6cm [S]
 \vec{v}



$$\vec{u} + \vec{v} = \vec{r}$$

$$\vec{r} = 7.9 \text{ cm}$$

$\vec{u} + \vec{v}$ DOES NOT mean we are adding \vec{u} and \vec{v} . It means we are using \vec{u} and \vec{v} to determine our resultant.

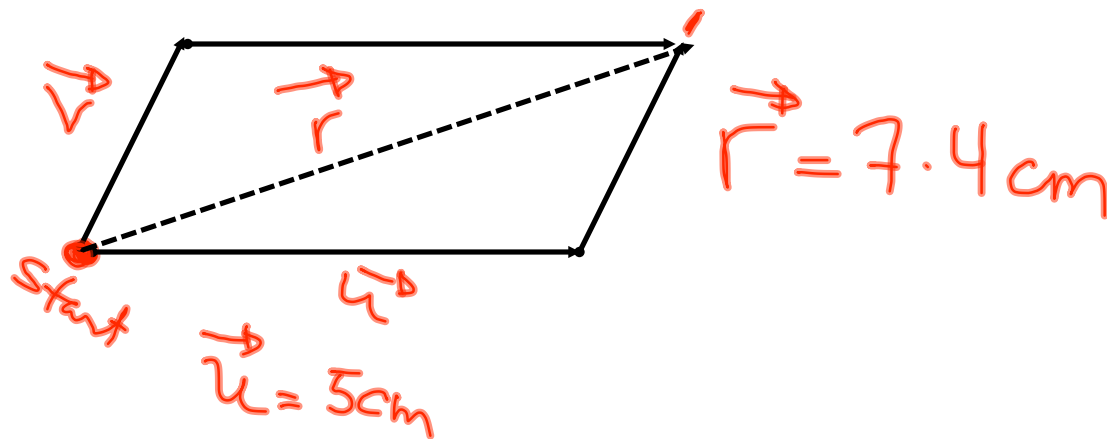
$$1 \text{ cm} = 10 \text{ km/h}$$

$$\vec{r} = 7.9 \text{ cm} \times 10$$

$$79 \text{ km/h}$$

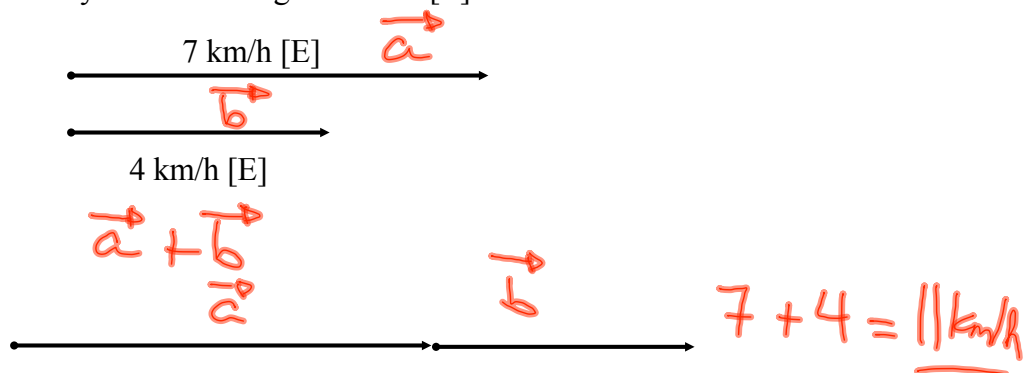
Parallelogram Method: This is where the vectors are drawn tail to tail and the resultant is the diagonal of the parallelogram

$$\vec{V} = 3\text{cm}$$

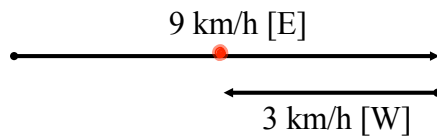


Vector Addition

Suppose that you are riding on a train that is moving at 7 km/h [E] and you are walking at 4 km/h [E] towards the front of the train.



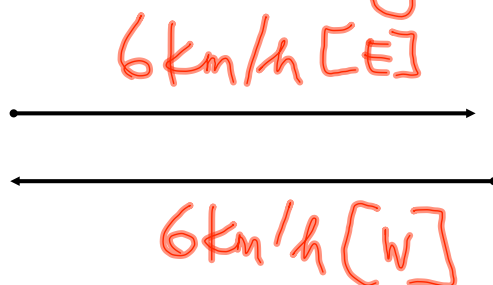
Suppose you are on the same train and it is moving at 9 km/h [E] while you walk to the back of the train at 3 km/h [W].



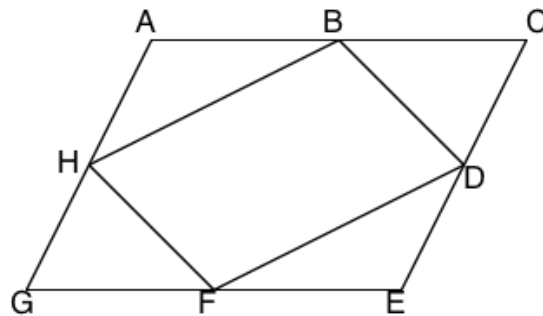
$$9 - 3 = 6 \text{ km/h [E]}$$

Zero Vector

The result places you at your starting point.



Adding Vectors in a Geometric Figure



Determine the vector sum of

a) $AH + HG = AG$

b) $HB + BD = HD$

c) $GF + BC = GE \text{ or } AC$

d) $GF + CB = \emptyset$

e) $FD + DE = FE$

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