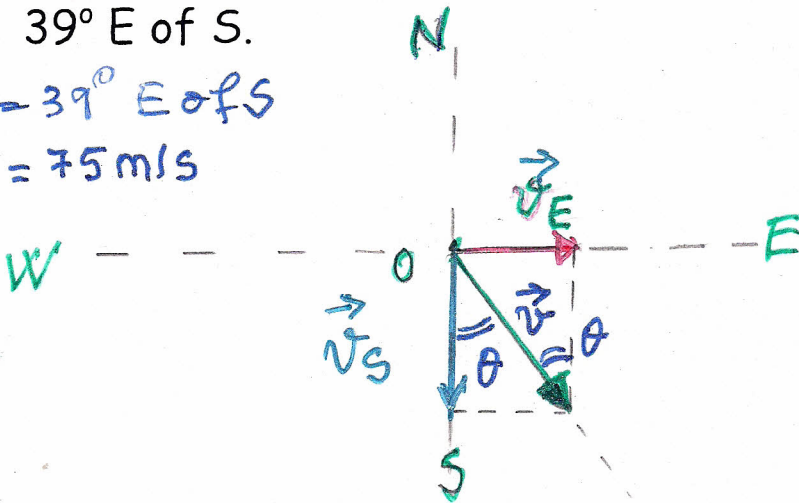


Warm up

1. Find the east component of a vector, 75 m/s, 39° E of S.

$\theta = 39^\circ \text{ E of S}$
 $v = 75 \text{ m/s}$



$$\sin \theta = \frac{v_E}{v}$$

$$v_E = v \cdot \sin \theta$$

$$v_E = 75 \text{ m/s} \cdot \sin 39^\circ$$

$$v_E = 47 \text{ m/s}$$

2. Find the south component of the vector in #1.

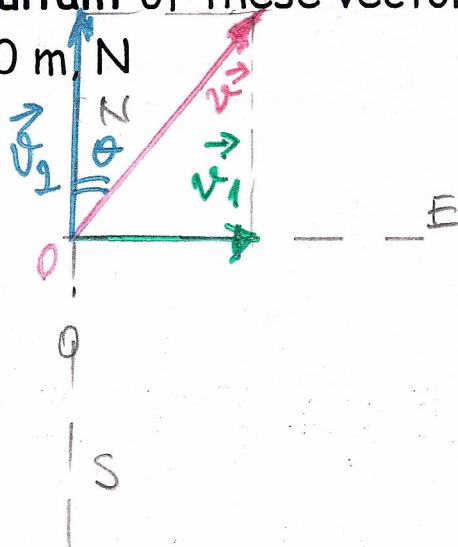
$$v_S = v \cdot \cos \theta = 75 \text{ m/s} \cdot \cos 39^\circ$$

$$v_S = -5.8 \text{ m/s South}$$

3. What is the resultant of these vectors?

110 m, E and 270 m, N

$v_1 = 110 \text{ m}$
 $v_2 = 270 \text{ m}$
 W



$$v^2 = v_1^2 + v_2^2$$

$$v^2 = (110 \text{ m})^2 + (270 \text{ m})^2$$

$$v^2 =$$

$$v = \sqrt{\quad} = \dots \text{ m}$$

$$v = 290 \text{ m}$$

$$\tan \theta = \frac{v_1}{v_2}$$

$$\theta = \tan^{-1} \left(\frac{110}{270} \right)$$

$$\theta =$$

The resultant vector has a magnitude of

290 m 22° E of N

magnitude direction description

$210\text{ m} \sin 30^\circ = 105\text{ m}$
 $210\text{ m} \cos 30^\circ = 181\text{ m}$
 $210\text{ m} \sin 45^\circ = 147\text{ m}$
 $210\text{ m} \cos 45^\circ = 147\text{ m}$



MOPIL = 4