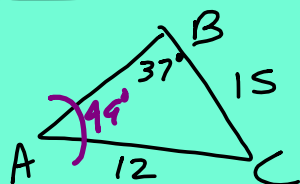


VECTORS REVIEW

Law of Sines - SSA

$$\sin A = 1.235$$

No \triangle



SSA

Find C.

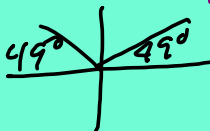
$$\frac{\sin A}{15} = \frac{\sin 37^\circ}{12}$$

$$\sin A = 0.75$$

$$\sin^{-1}(0.75) = 48.8$$

$$= 49^\circ$$

$A = 49^\circ$	$A' = 131^\circ$
$B = 37^\circ$	$B = 37^\circ$
$C = 94^\circ$	$C' = 12^\circ$



Law of Sines

$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

AAS

ASA

SSA $\left\{ \begin{array}{l} 1 \\ 2 \end{array} \right.$

Law of Cosines

$$a^2 = b^2 + c^2 - 2bc \cos A$$

SSS, SAS

After Law of Cos, must find smallest remaining \angle .

$$|v| = 24 \quad \theta = 120^\circ$$

Find component form.

$$\langle x, y \rangle$$

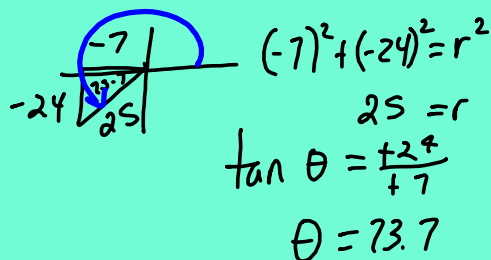
$$x = |v| \cos \theta = 24 \cos 120^\circ = 24 \left(-\frac{1}{2} \right) = -12$$

$$y = |v| \sin \theta = 24 \sin 120^\circ = 24 \left(\frac{\sqrt{3}}{2} \right) = 12\sqrt{3}$$

$$\langle -12, 12\sqrt{3} \rangle$$



$\langle -7, -24 \rangle$ Find $|v| + \theta$



$$25 = r$$

$$\tan \theta = \frac{-24}{-7}$$

$$\theta = 73.7$$

$$|v| = 25 \quad \theta = 253.7^\circ$$

Dot product -

$$\langle -2, 3 \rangle + \langle 12, 8 \rangle$$

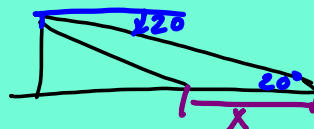
Parallel = slopes = $\frac{y}{x}$

$$\langle -2, 3 \rangle \cdot \langle 12, 8 \rangle$$

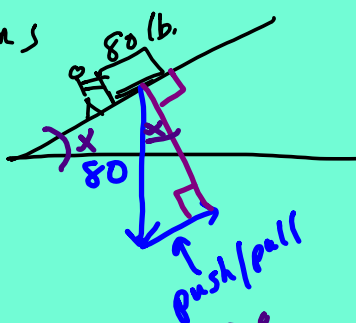
$$= -24 + 24$$

$$= 0 \quad \leftarrow \text{vectors are orthogonal}$$

1) Angles of Elev./Depr.

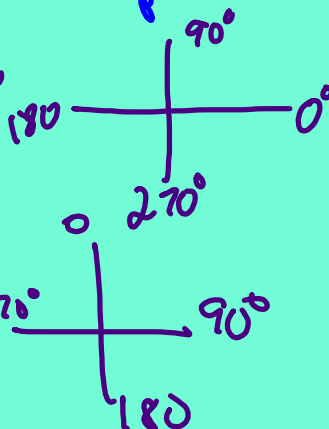


2) Incline Problems

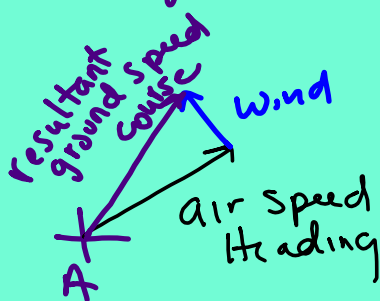


3) Force Problem

resultant = start to end
equilibrium = end to start



4) Navigation



5) Parametric Eq

$$x_t = |v|t \cos \theta$$

$$y_t = \frac{1}{2}at^2 + |v|t \sin \theta + s_0$$

