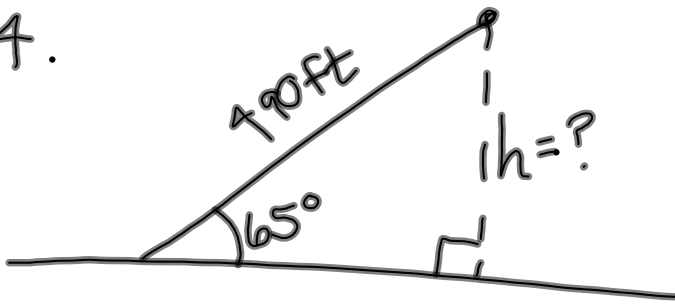


Ch 5 Test

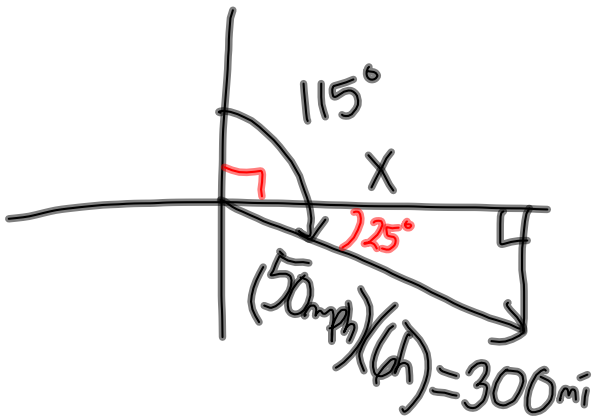
24.



$$\sin 65^\circ = \frac{h}{490}$$

$$h = 490 \sin 65^\circ$$

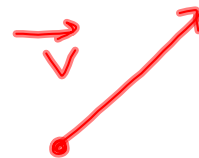
25.



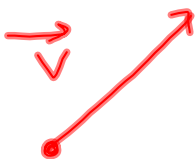
$$\cos 25^\circ = \frac{x}{300}$$

$$x = 300 \cos 25^\circ$$

7.5, 7.6 - Vectors



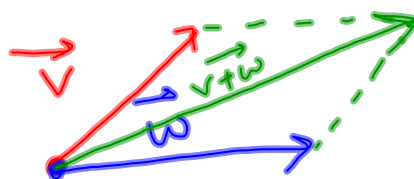
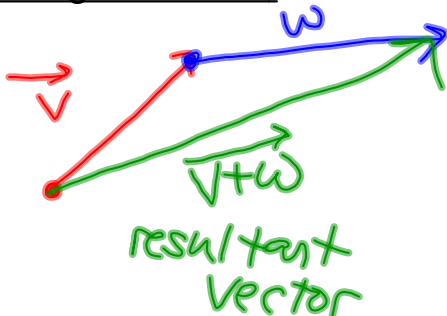
A vector is a directed line segment; it has a unique length (magnitude) and direction angle



Vector Addition:

Vectors can be added using the Triangle Method or the

Parallelogram Method



7.5 #28. An airplane flies 032° for 210 km, and then 280° for 170 km. How far is the plane then, from the starting point, and in what direction?

*heading → measured clockwise from North

SAS → Law of Cosines

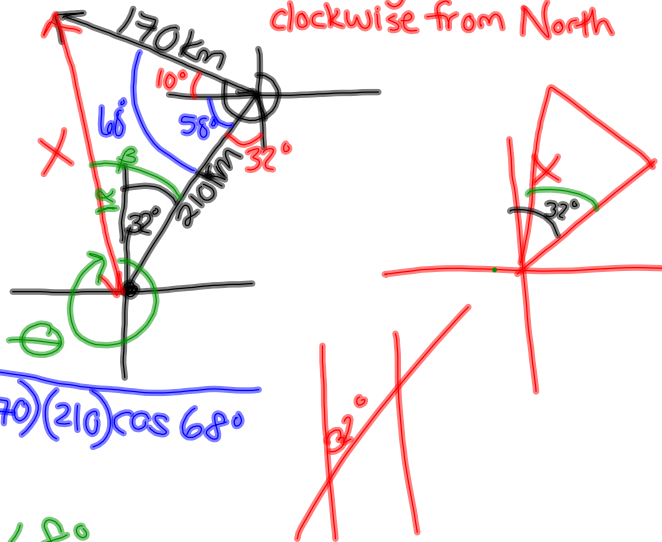
$$\theta = 360^\circ - 15^\circ = 345^\circ$$

$$x = \sqrt{170^2 + 210^2 - 2(170)(210)\cos 68^\circ} \approx 215 \text{ km}$$

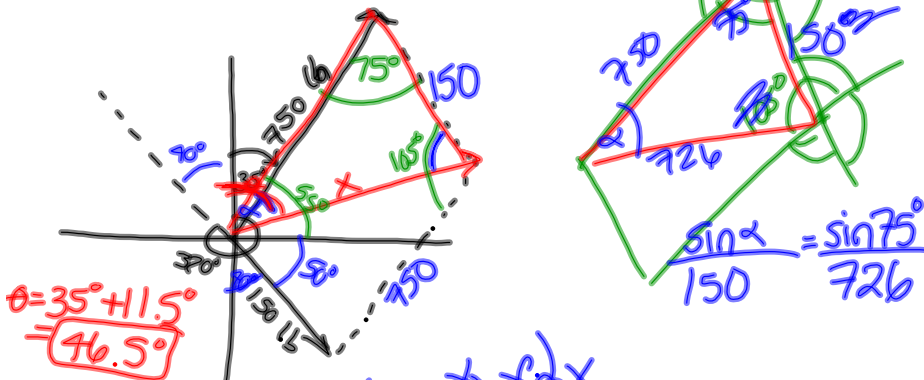
$$\frac{\sin \beta}{170} = \frac{\sin 68^\circ}{215}$$

$$\beta = \sin^{-1}\left(\frac{170 \sin 68^\circ}{215}\right) \approx 47^\circ$$

$$\alpha = 47^\circ - 32^\circ = 15^\circ$$



26. 750 lb @ 35°
wind 150 lb from 320°

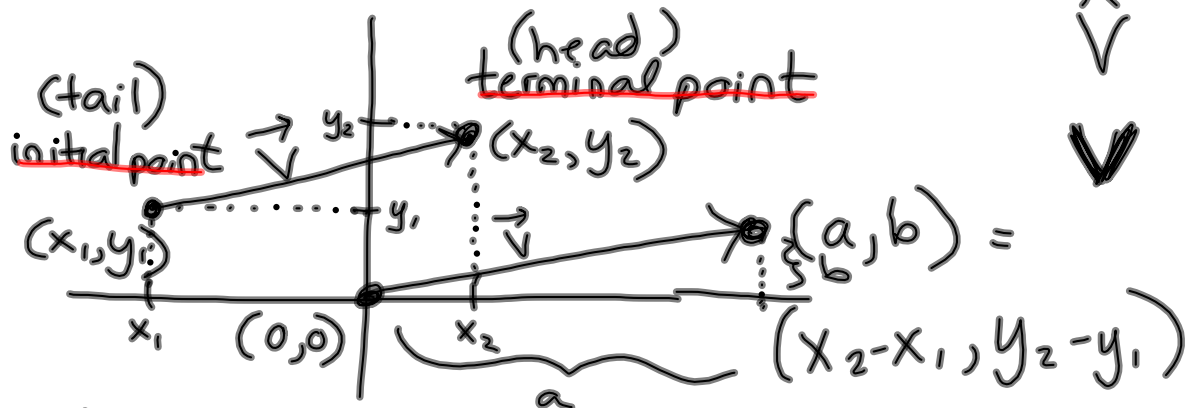


SAS → law of cosines to find x

$$x = \sqrt{150^2 + 750^2 - 2(150)(750)\cos 75^\circ} \approx 726 \text{ lb}$$

$$\alpha = \sin^{-1}\left(\frac{150 \sin 75^\circ}{726}\right) = 11.5^\circ$$

Vectors! (7.5 & 7.6)



$\vec{v} = \langle a, b \rangle$ = "component form" of the vector whose initial point is $(0,0)$ and terminal point is (a,b)

magnitude of $\vec{v} = |\vec{v}| = \sqrt{a^2 + b^2}$

\overrightarrow{CD} , $C(2,5)$, $D(3,-1)$
 | |
 initial pt terminal pt

find a vector \vec{v} equivalent to \overrightarrow{CD} whose initial point is $(0,0)$.

terminal point - initial point

$$(3-2, -1-5) = (1, -6)$$

$$\vec{v} = \langle 1, -6 \rangle$$

7.5

27, 29

7.6 .

1-7 odd