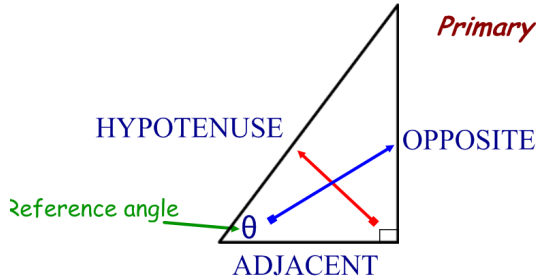


REVIEW - What formula do I use? Ask yourself...

- Is it a right triangle? If Yes, then...



Primary Trigonometric Ratios

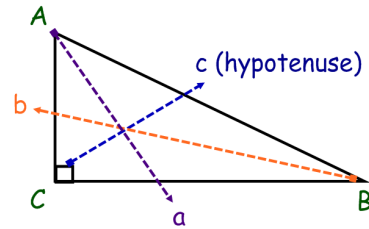
$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

Memory Aid: "SOH CAH TOA"

Pythagorean Theorem



$$c^2 = a^2 + b^2$$

- If you are finding a side, do you have **SAS**? If Yes, then...

Law of Cosines

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

- If you are finding an angle, do you have **SSS**? If Yes, then...

Law of Cosines (rearranged)

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

- Anything else...use your Law of Sines!

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

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

"when looking for a side"

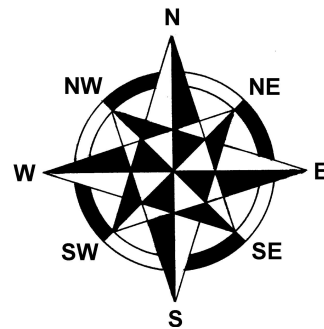
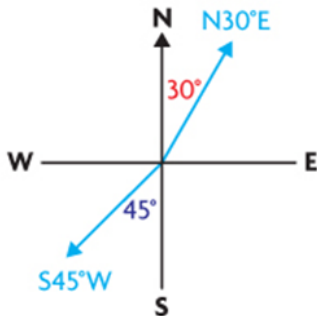
"when looking for an angle"

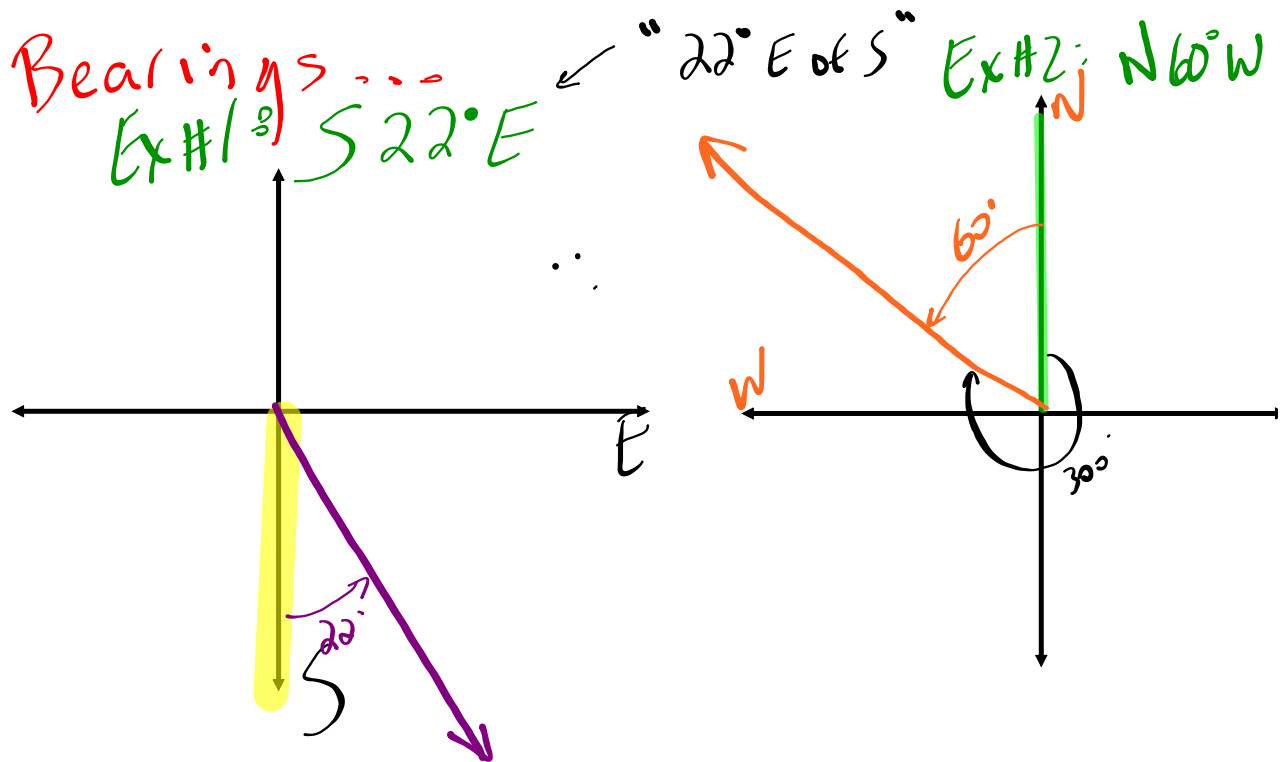
MORE APPLICATIONS... Bearings

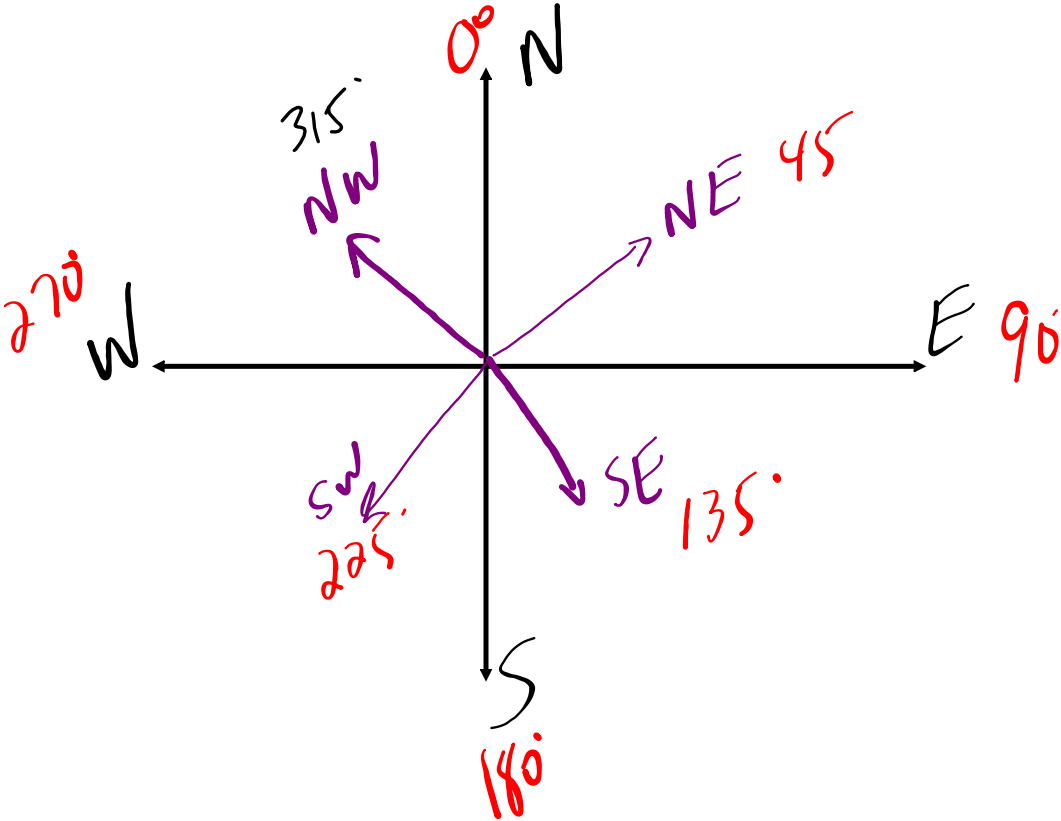
NOTE:

Communication | Tip

Directions are often stated in terms of north and south on a compass. For example, $N30^\circ E$ means travelling in a direction 30° east of north. $S45^\circ W$ means travelling in a direction 45° west of south.







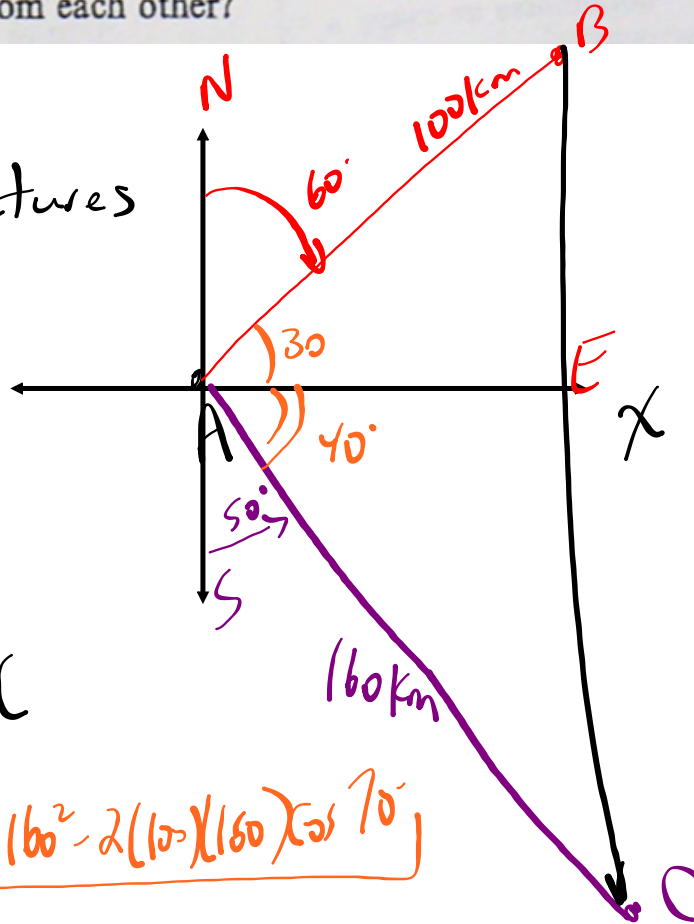
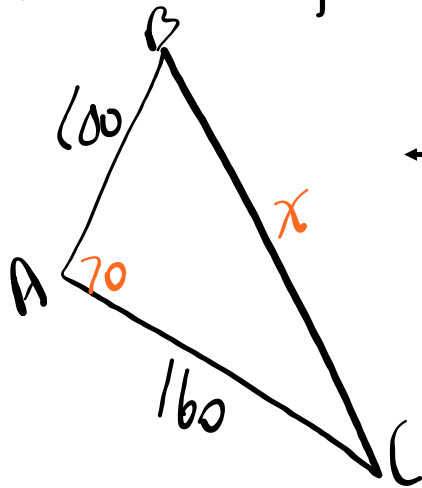
Booklet Questions... 10.12: #8 - 12

Let's do #8 TOGETHER...

8 In an airport control tower A, 2 planes at B and C are located at the same altitude on a radar screen. The range finder determines one plane to bear $N60^\circ E$ at 100 km while the other bears $S50^\circ E$ at 160 km. How far apart are the planes from each other?

STRATEGY

1 Draw \cong pictures



SAS $\Rightarrow x^2 = 100^2 + 160^2 - 2(100)(160)\cos(70^\circ)$

$x^2 =$
 $x =$

$100^2 + 160^2 - 2 * 100 * 160 \cos(70)$ 24655.35541 $\sqrt{\text{Ans}}$ 157.0202389

(157 km)