

Lesson 5:

Revisiting the trig ratios w Principle >
SOH CAH TOA

$$\frac{\text{opp}}{\text{hypo}} = \frac{0.5 \text{ hypo}}{\text{hypo}}$$

P7

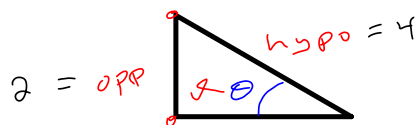
$$\frac{\text{opp}}{\text{hypo}} = 0.5$$

$$\sin 30 = 0.5$$

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

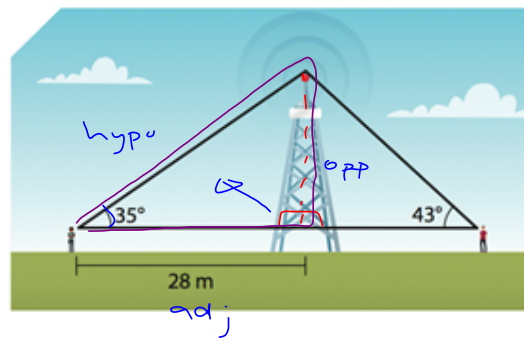
$$\cos \theta = \frac{\text{adj}}{\text{hypo}}$$

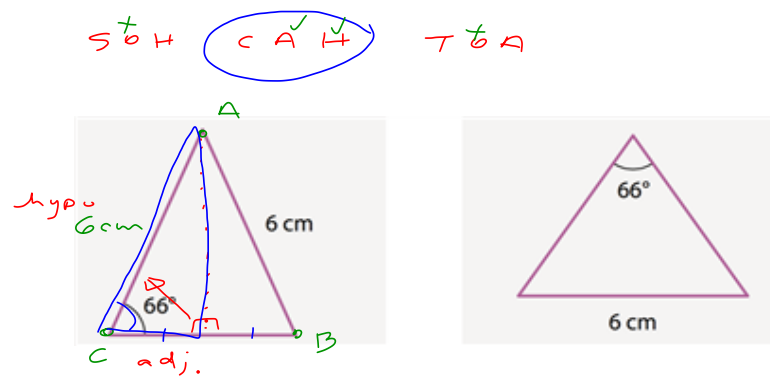
$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$



TIP: make
right triangles
when you know
side lengths.

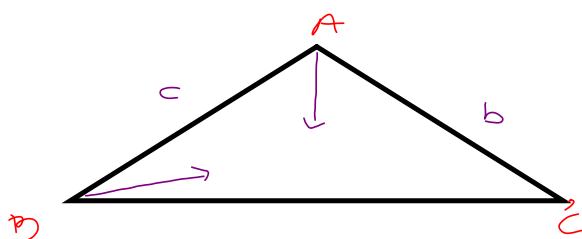
S O H C A H T O A





principle 2 15209

Sine Law to find a side length in any Triangle



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

side
angles

P 141 find $m\overline{AB}$



step i. label Δ
A/B/C / a / b / c

step ii. write 2 ratio w known info and want wanted info

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

$$\frac{5.5}{\sin 81} = \frac{c}{\sin 22}$$

$$\frac{5.5 \sin 22}{\sin 81} = \frac{c \cdot \cancel{\sin 81}}{\cancel{\sin 81}}$$

$$\frac{(5.5 \sin 22)}{\sin 81} = c$$

$$c = 2.09 \text{ units}$$

step iii solve 0.0.
c needs to be isolated

P 142 # 8

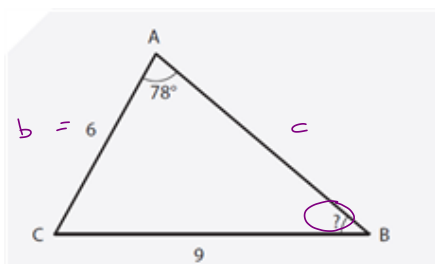
P 152 # 2 a)

P 140 # 5

→ find 2
incorrect uses of sine.

Sine Law to find an angle in an acute triangle

P 144
find $\angle B$



step i.
note whether $\angle B$ is acute or obtuse

label A/B/C/a/b/c

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

$$\frac{\sin 78}{9} = \frac{\sin B}{6}$$

$$6 \sin 78 = \frac{9 \cdot \sin B}{9}$$

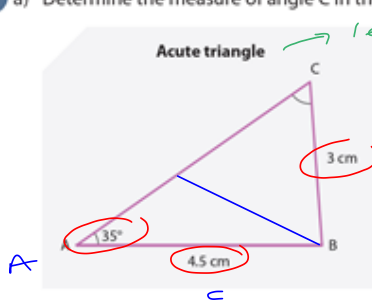
$$\left(\frac{6 \sin 78}{9} \right) = \sin B$$

$$B = \sin^{-1} \left(\frac{6 \sin 78}{9} \right)$$

$$B = 40.7^\circ$$

9 a) Determine the measure of angle C in the following acute triangle ABC.

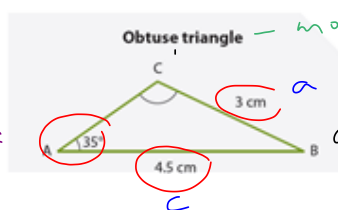
P 143



less than 90°
The ambiguous case of sine law

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

b) Determine the measure of angle C in the following obtuse triangle ABC.



more than 90°
 C and C' are supplementary angles

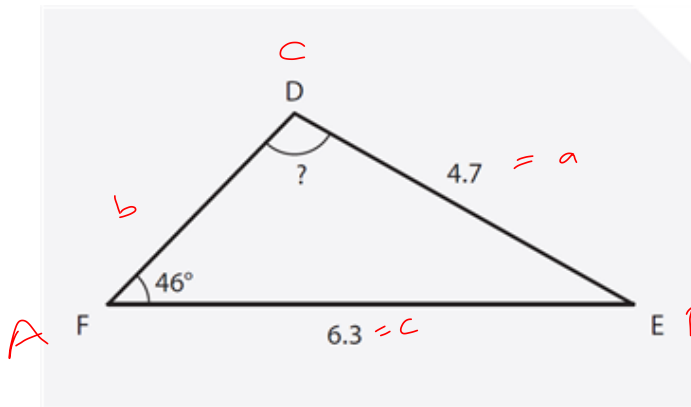
step ii solve for B

0.0. sin/cos/tan

P 145 #10 a)
P 152 #2 b)

Sine Law to find an angle in an obtuse Δ

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



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

$$\frac{4.7}{\sin 46} = \frac{6.3}{\sin C}$$

$$4.7 \sin C = \frac{6.3 \sin 46}{4.7}$$

$$\sin^{-1} \sin C = \left(\frac{6.3 \sin 46}{4.7} \right)$$

less than 90° and supposed to be obtuse.
 Step final find $\angle C$'s supplement (C')

$$\angle C' = 180^\circ - \angle C$$

$$\angle C' = 180^\circ - 74.6^\circ$$

$$\angle C' = 105.4^\circ$$

$C = 74.6^\circ$
 P145 #10 b)
 P153 #6 b

- HWK
- | | | |
|----------|------|----------|
| P 153 #5 | - #6 | P 163 #4 |
| P 154 #8 | | P 164 #6 |
| P 162 #2 | | P 170 #1 |

