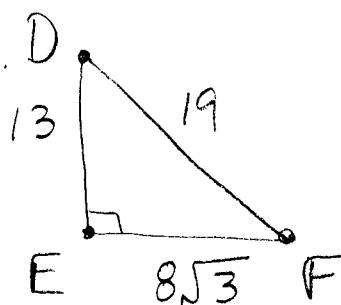


Alg. 1 - BE TUESDAY 3-29-11

Use your TABLE OF TRIGONOMETRIC FUNCTIONS
AFTER finding THE SIN, COS, TAN for BOTH
ACUTE ANGLES TO find the measure of EACH
ACUTE angle, to nearest ten-thousandth.



- ① $\sin D = ?$ ② $\cos D = ?$ ③ $\tan D = ?$
④ $\sin F = ?$ ⑤ $\cos F = ?$ ⑥ $\tan F = ?$
⑦ $m\angle D = ?$ ⑧ $m\angle F = ?$

Answers

- ① $\sin D = 0.7293$ ② $\cos D = 0.6842$ ③ $\tan D = 1.0659$
④ $\sin F = 0.6842$ ⑤ $\cos F = 0.7293$ ⑥ $\tan F = 0.9382$
⑦ $m\angle D = \sin^{-1} 0.7293 = 46.83^\circ$
⑧ $m\angle F = 90 - 46.83 = 43.17^\circ$

NOTE: $\sin^{-1} 0.7293 = \cos^{-1} 0.6842 = \tan^{-1} 1.0659 = 46.83^\circ$

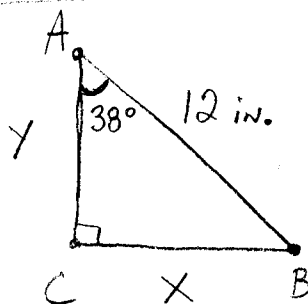
• Homework review: Pg. 627 # 4-11.

Every triangle HAS 3 angles AND 3 sides.
Finding the measures of all 3 angles and all 3 sides is called solving the triangle.

Trig functions ARE A powerful tool for solving triangles.

EX4
pg 625 Solve $\triangle ABC$

$$\begin{aligned}x &= ? & A &= 38^\circ \\y &= ? & B &= ? \\C &= 12 \text{ in} & C &= 90^\circ\end{aligned}$$



$$\text{Since } m\angle A = 38^\circ \quad m\angle B = 90 - 38 = \boxed{52^\circ = m\angle B}$$

$$\sin 38^\circ = \frac{x}{12} \quad \therefore 12 \sin 38^\circ = x$$

$$12 (.6157) = x$$

$$7.39 \approx x$$

$$\boxed{x \approx 7.4 \text{ in}}$$

$$\cos 38^\circ = \frac{y}{12} \quad \therefore 12 \cos 38^\circ = y$$

$$12 (.7880) = y$$

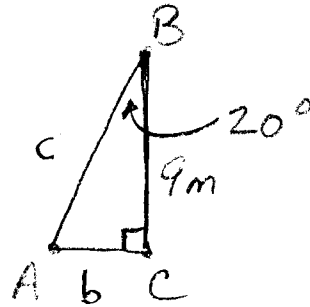
$$9.46 \approx y$$

$$\boxed{y \approx 9.5 \text{ in}}$$

CALCULATOR WARNING: THE "MODE" OF A CALCULATOR IS usually where you can select the angle units to be either Degrees or RADIANS. MAKE SURE YOURS IS IN DEGREES!

(EX) SOLVE $\triangle ABC$

$$\begin{aligned} a &= 9\text{m} & A &= ? \\ b &= ? & B &= 20^\circ \\ c &= ? & C &= 90^\circ \end{aligned}$$



$$m\angle A = 90 - 20 = \boxed{70^\circ = m\angle A}$$

$$\sin 20^\circ = \frac{b}{c} \quad \cos 20^\circ = \frac{9}{c} \quad \therefore c(\cos 20^\circ) = 9$$

$$c = \frac{9}{\cos 20^\circ}$$

$$c = \frac{9}{.9397}$$

$$c \approx 9.58\text{m}$$

$$\boxed{c \approx 9.6\text{m}}$$

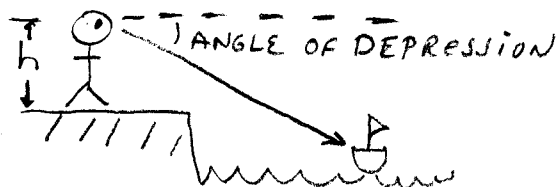
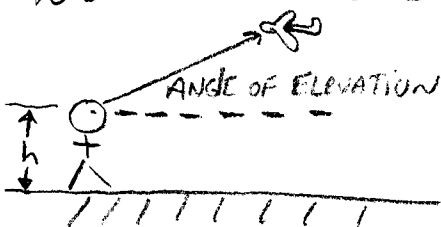
$$\tan 20^\circ = \frac{b}{9} \quad \therefore 9 \tan 20^\circ = b$$

$$9(.3640) \approx b$$

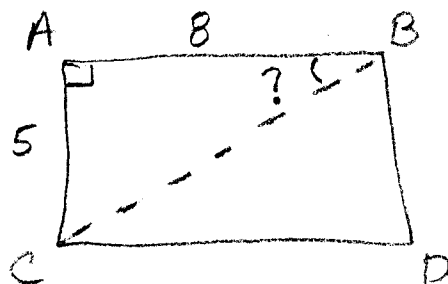
$$3.276 \approx b$$

$$\boxed{b \approx 3.3\text{m}}$$

VOCABULARY



⊗ Find the measure of $\angle ABC$



$$\tan \angle ABC = \frac{5}{8} = .625$$

$$\boxed{\tan^{-1} .625 \approx 32^\circ}$$

Homework / Classwork:

- Memorize SOH CAH TOA and what it means.
- Pg 629 # 43-46
52-55