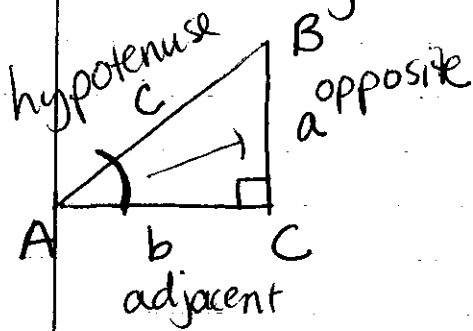


Day 80

# 14.3 Right Triangle Trig



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

$$\cos A = \frac{b}{c}$$

$$\tan A = \frac{a}{b}$$

Opp  
Hyp  
Adj  
Hyp  
Opp  
Adj

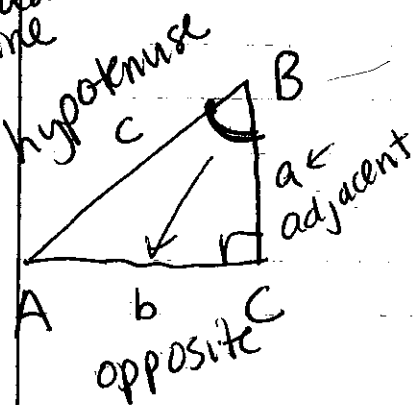
$$\csc A = \frac{c}{a}$$

$$\sec A = \frac{c}{b}$$

$$\cot A = \frac{b}{a}$$

reciprocal  
side

reciprocal  
cosine



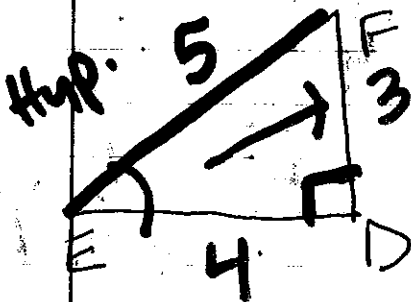
$$\sin B = \frac{b}{c}$$

$$\cos B = \frac{a}{c}$$

$$\tan B = \frac{b}{a}$$

(ex) In  $\triangle DEF$ ,  $\angle D$  is a right  $\angle$  and

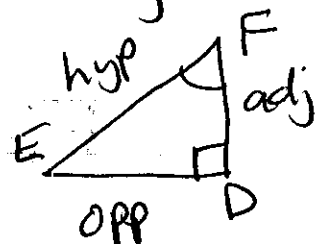
$\tan E = \frac{3 \text{ opp}}{4 \text{ adj}}$  Find  $\sin E$  and  $\sec F$  in fraction + decimal form.



$$\sin E = \frac{3}{5} \text{ opp/hyp}$$

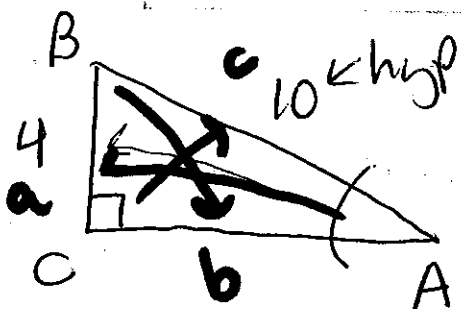
$$\sec F = \frac{5}{3} \text{ hyp/adj}$$

- |            |            |           |
|------------|------------|-----------|
| 3, 4, 5    | 5, 12, 13  | 7, 24, 25 |
| 6, 8, 10   | 10, 24, 26 |           |
| 9, 12, 15  |            |           |
| 12, 16, 20 |            |           |
- triples



Use trig inverses ( $\sin^{-1}$ ,  $\cos^{-1}$ ,  $\tan^{-1}$ )  
to find acute  $\angle$ 's in a right  $\Delta$ .

(ex)  
opp



Find  $m\angle A$ .  
 $m\angle B$ .

$\overline{AC}$  (pyt. thm)

$$m\angle A = \sin^{-1}\left(\frac{4}{10}\right) \text{ mode degrees.}$$

$$m\angle A = 23.6^\circ$$

$$m\angle B = 90 - 23.6^\circ = 66.4^\circ$$

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

$$4^2 + b^2 = 10^2$$

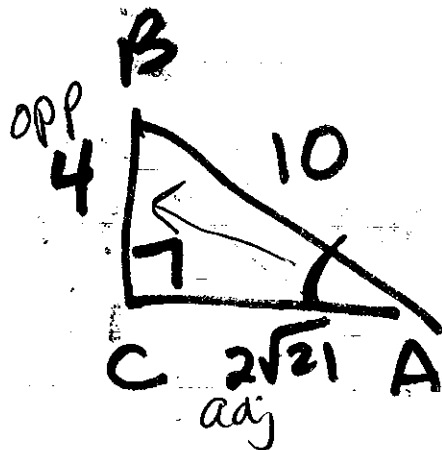
$$16 + b^2 = 100$$

$$-16$$

$$\sqrt{b^2} = \sqrt{84}$$

$$\sqrt{4 \cdot 21} = 2\sqrt{21}$$

$$\overline{AC}: b = 2\sqrt{21}$$

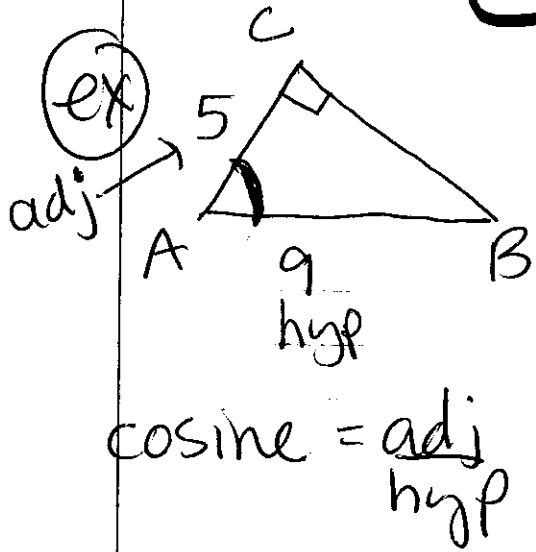


Find  $\cot A = \frac{2\sqrt{21}}{4}$

$\frac{\text{adj}}{\text{opp}} = \frac{\sqrt{21}}{2}$

$$\tan A = \frac{4 \text{ opp}}{2\sqrt{21} \text{ adj}} = \frac{2}{\sqrt{21}} \cdot \frac{\sqrt{21}}{\sqrt{21}}$$

$$\tan A = \frac{2\sqrt{21}}{21}$$



Find  $m\angle A$ .

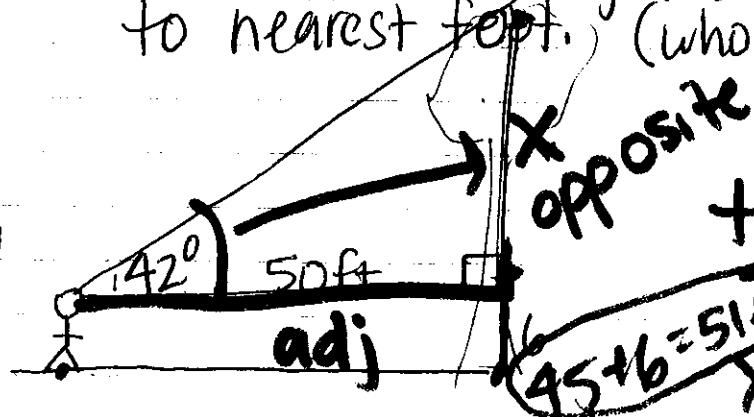
$$m\angle A = \cos^{-1}\left(\frac{5}{9}\right)$$

$$m\angle A = 56.3^\circ$$

(ex) Find  $\cos^{-1}\frac{\sqrt{3}}{2} = 30^\circ$

(ex) A man 6 ft tall is standing 50 ft. from a tree. When he looks at the top of the tree the  $\angle$  of elevation is  $42^\circ$ . Find the height of the tree to nearest feet. (whole #)

S  
C  
+  
A



$$\tan 42^\circ = \frac{X}{50}$$

$$X = 45.08$$