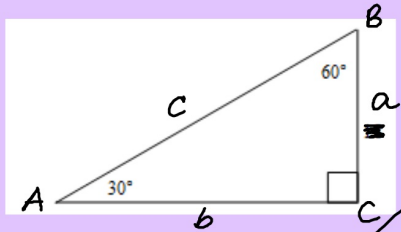


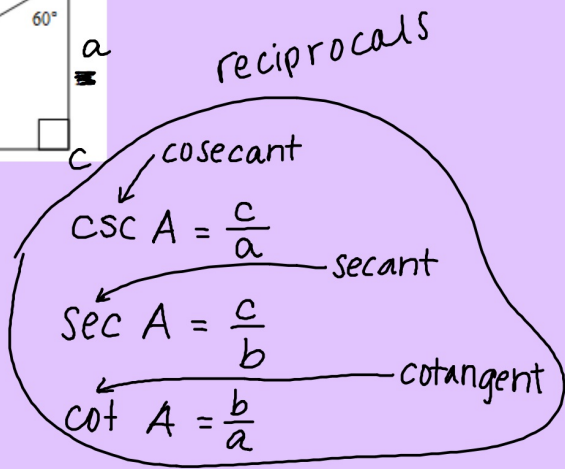
14.3 Right Triangle Trig



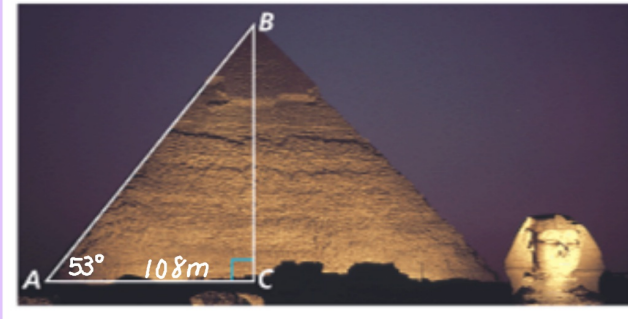
SOH $\sin A = \frac{a}{c}$

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

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



In the pyramid of Khafre, $AC \approx 108$ m and $m\angle A \approx 53^\circ$



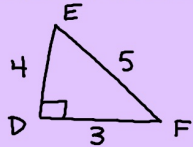
Find the height of the pyramid.
 $(\tan 53 = \frac{BC}{108}) 108$
 $108 \tan 53 = BC$
 $143 \approx BC$

Find the length of a lateral edge of the pyramid.

$\cos 53^\circ = \frac{108}{AB}$ $AB(.602) = \frac{(108)}{AB} AB$ $\frac{AB(.602) = 108}{.602}$
 $AB \approx 180$ m

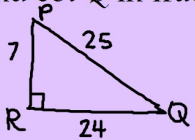
SOH CAH TOA

In $\triangle DEF$, $\angle D$ is a right angle. Draw a diagram and find $\sin E$ and $\sec F$ in fraction and decimal form. $\tan(E) = \frac{3}{4}$



$\sin E = \frac{3}{5}$ $\sec F = \frac{5}{3}$
 $\sin E = .6$ $\sec F = 1.67$

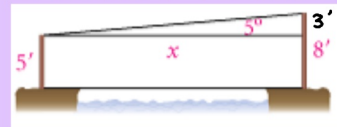
In $\triangle PQR$, $\angle R$ is a right angle. Draw a diagram and find $\sin P$, $\tan P$, $\cos Q$, and $\cot Q$ in fraction and decimal form $\cos(P) = \frac{7}{25}$



$\sin P = \frac{24}{25} = .96$
 $\cos Q = \frac{24}{25} = .96$
 $\tan P = \frac{24}{7} = 3.43$
 $\cot Q = \frac{24}{7} = 3.43$

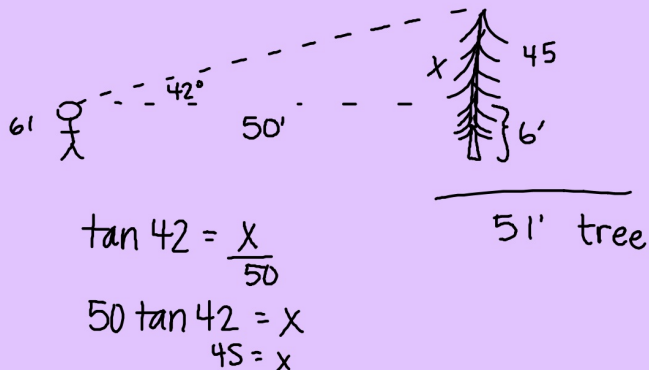
Park planners would like to build a bridge across a creek.

Surveyors have determined that from 5 ft above the ground, the angle of elevation to the top of an 8ft pole on the opposite side of the creek is 5° . Find the length of the bridge to nearest foot.



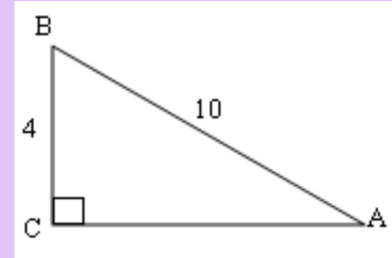
$\tan 5^\circ = \frac{3}{x}$
 $x \tan 5^\circ = 3$
 $x = \frac{3}{\tan 5^\circ}$
 $x = 34'$

A man 6 feet tall is standing 50 feet from a tree. When he looks up at the top of the tree, the angle of elevation is 42° . Find the height of the tree to the nearest tenth.



Page 5

Use trig ratio to find the $m\angle A$

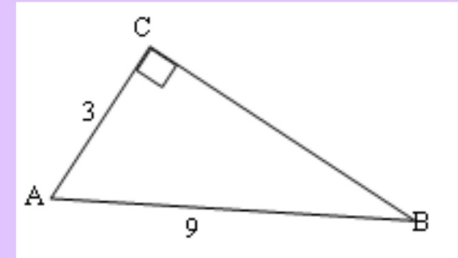


$$\sin A = \frac{4}{10}$$

$$\sin A = .4$$

$$A = \sin^{-1}(.4)$$

$$A = 23.6^\circ$$



$$\cos A = \frac{3}{9}$$

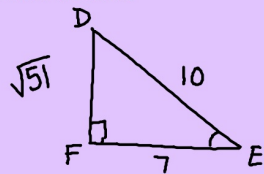
$$\cos A = .\bar{3}$$

$$A = \cos^{-1}(.3)$$

$$A = 70.5$$

Page 6

In $\triangle DEF$, $\angle F$ is a right angle, $d = 7$, and $f = 10$. Draw a diagram and find the remaining side length and angle degree measures. Round to nearest tenth.



$$\cos E = \frac{7}{10}$$

$$E = \cos^{-1}(.7)$$

$$E = 45.6$$

$$D = 44.4$$

$$7^2 + b^2 = 10^2$$

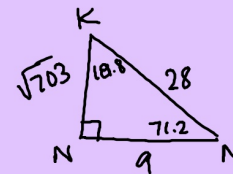
$$49 + b^2 = 100$$

$$b^2 = 51$$

$$b = \sqrt{51}$$

Page 7

In $\triangle KMN$, $\angle N$ is a right angle, $k = 9$, and $n = 28$. Draw a diagram and find the remaining side length and angle degree measures. Round to nearest tenth.



$$\cos M = \frac{9}{28}$$

$$M = \cos^{-1} \frac{9}{28}$$

$$M \approx 71.2$$

$$K = 90.0$$

$$- 71.2$$

$$\hline K = 18.8$$

Page 8

A straight road that goes up a hill is 800 feet higher at the top than at the bottom. The horizontal distance covered is 6515 feet. To the nearest degree, what angle does the road make with level ground.

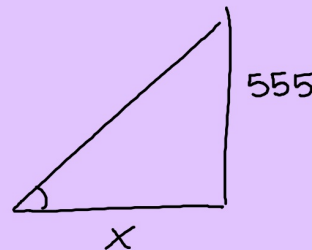


$$\tan A = \frac{800}{6515}$$

$$A = \tan^{-1}\left(\frac{800}{6515}\right) \quad A \approx 7^\circ$$

Page 9

A tourist visiting Washington DC is seated on the grass and looking up at the top of the Washington Monument (555 feet tall). The angle of her line of sight with the ground is 27° . Given that $\sin 27^\circ \approx 0.45$, $\cos 27^\circ \approx 0.89$ and $\tan 27^\circ \approx 0.51$, find her approximate ground distance from the base of the monument.



$$\tan 27 = \frac{555}{X}$$

$$X \tan 27 = 555$$

$$X = \frac{555}{\tan 27}$$

$$X \approx 1088'$$

Page 10

homework.

page 782 # 3-42 x 3, 8, 34, 41, 54