Warm up: p. 569

"Quiz 2"

$\tan 38 = \frac{x}{5}$

$5\tan 38 = x$

$\tan x = \frac{35}{32}$

$\tan^{-1}(35 \div 32) = x$

$47.6^\circ = x$

$\tan x = \frac{1}{11}$

$\tan^{-1}(1 \div 11) = x$

$\sqrt{8}\sqrt{12}$

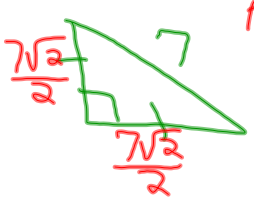
$\sqrt{2\cdot2\cdot2\cdot2\cdot3}$

$2\cdot2\sqrt{6}$

$= 4\sqrt{6}$

3. $\frac{\sqrt{15}}{\sqrt{20}} = \frac{\sqrt{3}\sqrt{5}}{\sqrt{4}\sqrt{5}} = \frac{\sqrt{3}}{\sqrt{4}}$

4. $\frac{7\sqrt{2}}{2} = 3.5\sqrt{2}$ $= \frac{\sqrt{3}}{2}$



$A = \frac{bh}{2}$

$= \frac{\left(\frac{7\sqrt{2}}{2}\right)\left(\frac{7\sqrt{2}}{2}\right)}{2}$

$= \frac{\frac{49(2)}{4}}{2}$

$= 12.25$

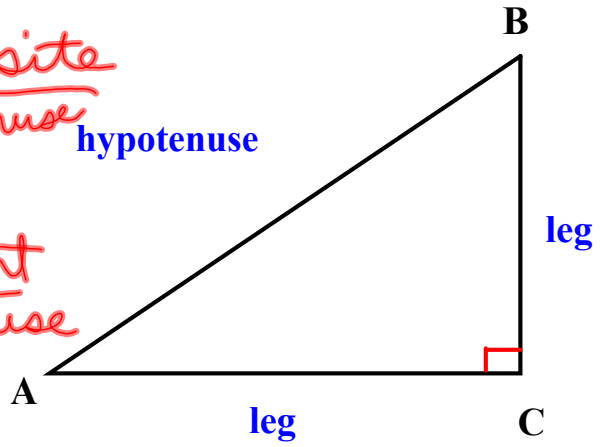
OBJECTIVE: You will learn to use the sine and cosine ratios to solve problems.

2-2-12

Section 13-5

sine -- opposite / hypotenuse

cosine -- adjacent / hypotenuse



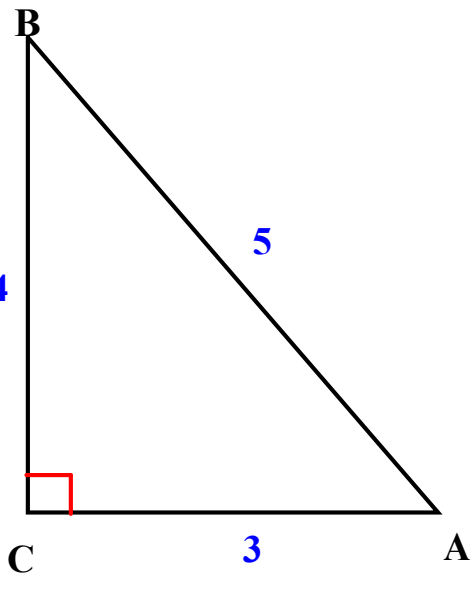
Example 1: Find sin A, cos A, sin B, and cos B.

a. sin A = $\frac{4}{5} = 0.8$

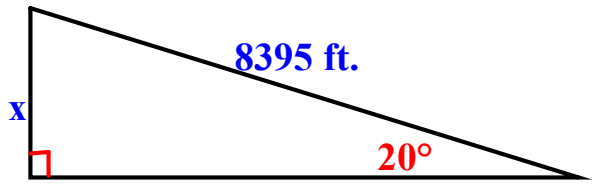
b. cos A = $\frac{3}{5} = 0.6$

c. sin B = $\frac{3}{5} = 0.6$

d. cos B = $\frac{4}{5} = 0.8$



Example 2: The Aerial Ski Run in Snowbird, Utah, is 8395 feet long, and on average, has a 20° angle of elevation. What is the vertical drop? Round to the nearest tenth.



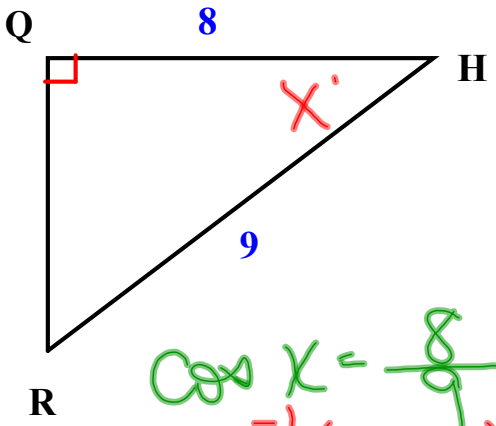
$\sin 20 = \frac{x}{8395}$

$8395 \sin 20 = x$

$2871.3 \text{ ft} = x$

** You can use $\sin^{-1}$ and $\cos^{-1}$ on your calculator to find the measure of the angle when you know the measures of the leg and hypotenuse.**

Example 3: Find the measure of ∠H to the nearest degree.

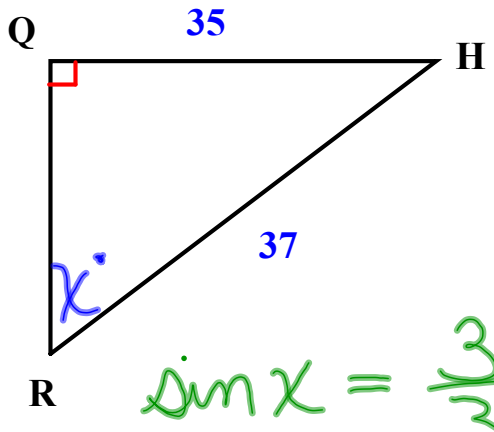


$\cos x = \frac{8}{9}$

$\cos^{-1}(8 \div 9) = x$

$27^\circ = x$

Example 4: Find the measure of ∠R to the nearest degree if HQ = 35 and HR = 37.



$\sin x = \frac{35}{37}$

$\sin^{-1}(35 \div 37) = x$

$71^\circ = x$

trigonometric identities --

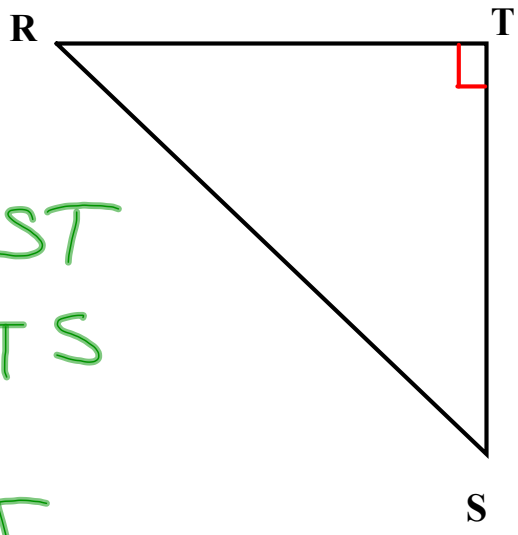
trig ratios true for all values of the angle

Theorem 13 -3 --If *x* is the measure of an acute angle of a right triangle, then tan x = $\frac{\sin x}{\cos x}$

soh - cah - toa

Guided Practice:

1. Identify each segment in the figure.

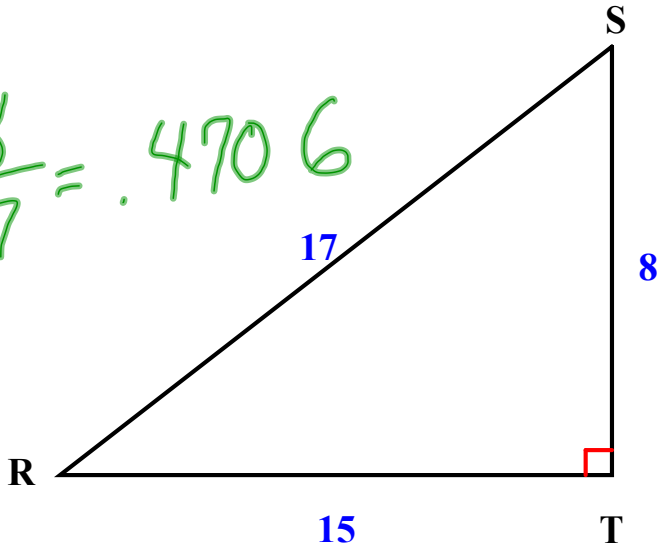


a. leg adjacent to ∠S ST

b. leg opposite ∠R TS

c. leg adjacent to ∠R RT

2. Find each sine or cosine. Round to four decimal places, if necessary.

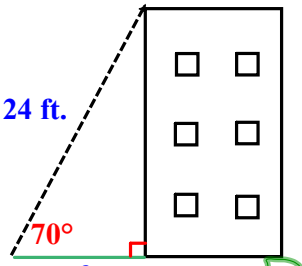


a. sin R = $\frac{8}{17} = .4706$

b. cos R = $\frac{15}{17} = 0.8824$

Find each missing measure.

3.

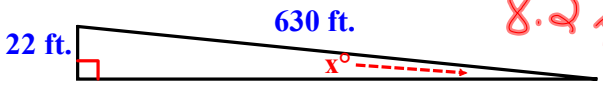


$\cos 70 = \frac{x}{24}$

$24 \cos 70 = x$

$8.2 \text{ ft} = x$

4.



$\sin x = \frac{22}{630}$

$\sin^{-1}(22 \div 630) = x$

$2^\circ = x$

Do you have any Vocab questions?

OBJECTIVE:

HOMEWORK: p. 576 - 577

 # 12 - 32, 36 - 39

*****Quiz next time over 13-3 to 13-5*****