Unit 9 Day 7:
Trigonometry
9.6: Solve Right Triangles

Today's I Can Statements:

TR-4: I can use side ratios to find missing angle measures in right triangles.

TR-6: I can solve a right triangle using trigonometry.

Feb 25-9:35 AM

I.Find a missing angle

Calculator!! *Remember check mode!

When you are trying to find the angle....

ex: Sin A = $\frac{O}{H}$ $\frac{3}{5}$ or Sin A = 0.6000

Type: 2nd -> Sine -> 3 ÷ 5

$\sin^{-1}(\sin A = \frac{3}{5})$

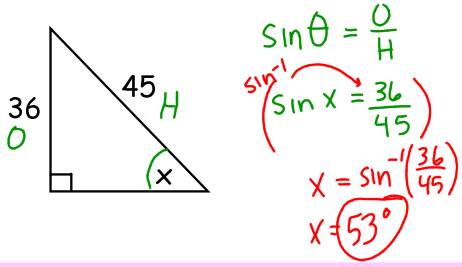
$A = \sin^{-1}(\frac{3}{5})$

Mar 1-7:44 AM

I.Find a missing angle

Example

Find the value of x.



$\sin\theta = \frac{O}{H}$

$\sin^{-1}$ $\sin x = \frac{36}{45}$

$x = \sin^{-1}(\frac{36}{45})$

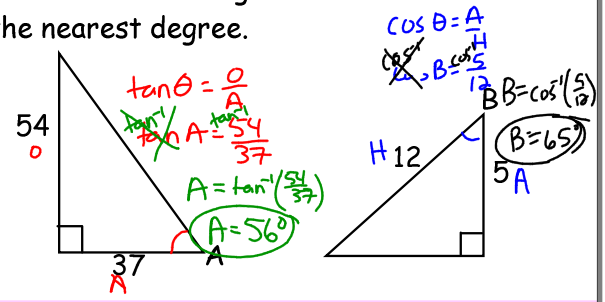
$x = 53°$

Feb 22-6:51 PM

I.Find a missing angle

Example

TOYO: Find the degree of A and B. Round to the nearest degree.



$\tan\theta = \frac{O}{A}$

$A = \tan^{-1}(\frac{54}{37})$

$A = 56°$

$\cos\theta = \frac{A}{H}$

$B = \cos^{-1}(\frac{5}{13})$

$B = 65°$

Feb 22-6:52 PM

II. Solve a triangle

To solve a right triangle means to determine the measures of all six parts.

*If its missing, we have to find it.
That includes sides and angles

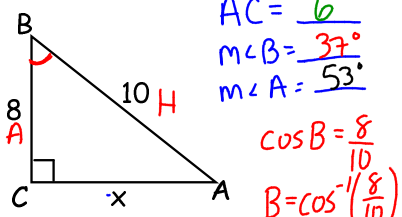
This means that we will be combining what we learned at the beginning of chapter 7 (pythagorean thrm.) and what we have been learning the last few days.

Feb 25-9:35 AM

II. Solve a triangle

Example

Solve the right triangle. Round sides to nearest tenth and angles to the nearest degree.



AC = 6

m∠B = 37°

m∠A = 53°

$\cos B = \frac{8}{10}$

$B = \cos^{-1}(\frac{8}{10})$

$= 37°$

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

$10^2 = 8^2 + AC^2$

$100 = 64 + AC^2$

$36 = AC^2$

$6 = AC$

$m\angle A = 90 - m\angle B$

$m\angle A = 90 - 37$

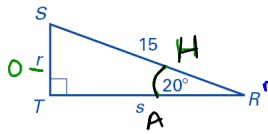
$m\angle A = 53°$

Feb 25-9:39 AM

II. Solve a triangle

Example

Solve the right triangle. Round decimals to the nearest tenth.



$r = 5.1$

$s = 14.1$

$m\angle S = 70°$

$m\angle S = 90 - m\angle R$

$m\angle S = 90 - 20$

$m\angle S = 70$

$\sin R = \frac{O}{H}$

$\frac{\sin 20}{1} = \frac{r}{15}$

$15\sin 20 = r$

$5.1 = r$

$\cos R = \frac{A}{H}$

$\frac{\cos 20}{1} = \frac{s}{15}$

$15\cos 20 = s$

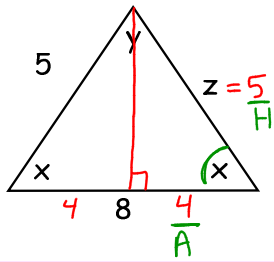
$14.1 = s$

Feb 25-9:40 AM

II. Solve a triangle

Example

This is not a right triangle. Solve the triangle.



$\cos X = \frac{4}{5}$

$X = \cos^{-1}\left(\frac{4}{5}\right)$

$X = 37°$

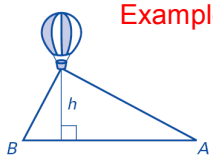
$180 - 2(37) =$

$y = 106°$

Feb 26-11:06 AM

Example

During a flight, a hot air balloon is observed by two persons standing at points A and B as illustrated in the diagram. The angle of elevation of point A is 28°. Point A is 1.8 miles from the balloon as measured along the ground.



a. What is the height h of the balloon?

b. Point B is 2.8 miles from point A. Find the angle of elevation of point B.

Feb 25-9:40 AM

In Class:

~~"Did You Hear About..." Worksheet~~

Tonight's Assignment:

Unit Plan Day 7 pg. 505 #7-18, 21, 30, 31

Remember:

9.5-9.6 Quiz will be...

Thursday 3/7 Friday 3/8

Today's I Can Statements:

TR-4: I can use side ratios to find missing side lengths in right triangles.

TR-6: I can solve a right triangle using trigonometry.

Feb 25-9:41 AM