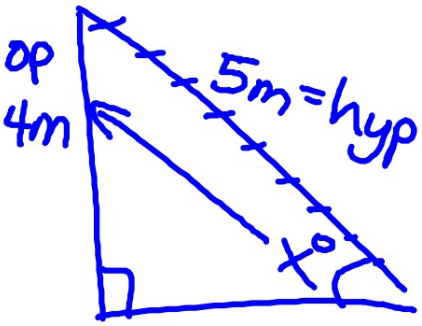
Day 69 May 11 Standard

Objective: Apply trig & PT to find angles and side lengths

Warm Up: draw a pic

A five-meter-long ladder leans against a wall, with the top of the ladder being four meters above the ground. What is the approximate angle that the ladder makes with the ground?



$\sin^{-1} x^\circ = \frac{4}{5}$

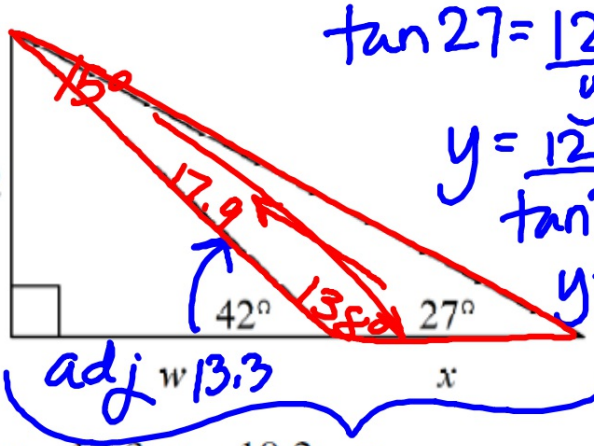
$x = 53^\circ$

Day 69 May 11 Honors

Objective: Apply everything trig to find angles and side lengths

Warm Up:

Find the value of w, then x. Round lengths of segments to the nearest tenth.



a. $w = 13.3, x = 10.2$
b. ~~$w = 10.8$~~, $x = 16.9$
c. $w = 13.3, x = 23.6$
d. ~~$w = 10.8$~~, $x = 6.1$

$\tan 42 = \frac{12}{w}$

$w = \frac{12}{\tan 42}$

$w = 13.3$

opp

adj

$\tan 27 = \frac{12}{y}$

$y = \frac{12}{\tan 27}$

$y = 23.6$

$23.6 - 13.3 = 10.3$

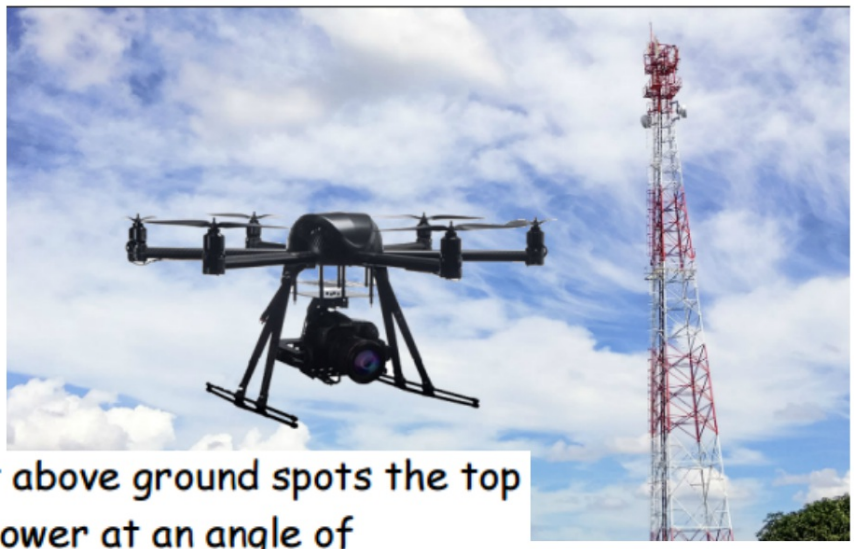
$\frac{\sin 27}{17.9} = \frac{\sin 15}{x}$

$x = \frac{17.9 \sin 15}{\sin 27}$

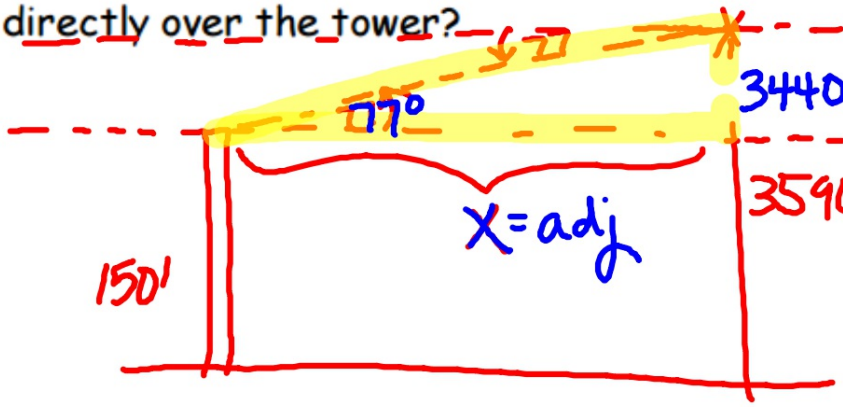
$x = 10.24$

standard
yesterday's day 68

Closure



A helicopter flying 3,590 feet above ground spots the top of a 150-foot tall cell phone tower at an angle of depression of 77°. How far must the helicopter fly to be directly over the tower?



$3590 - 150 = 3440'$

$\tan 77 = \frac{3440}{x}$

$x = \frac{3440}{\tan 77}$

$x = 794.2'$

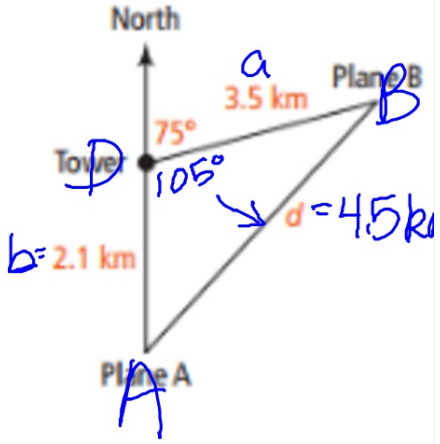
How do you know which law to use?

Use Law of Sines when you have: AAS, ASA, or SSA

vs.

Use Law of Cosines when you have: SAS, or SSS

6. **An air traffic controller is tracking a plane 2.1 kilometers due south of the radar tower. A second plane is located 3.5 kilometers from the tower at a heading of N 75° E (75° east of north). To the nearest tenth of a kilometer, how far apart are the two planes?** *for honors for fun*



$d^2 = a^2 + b^2 - 2ab\cos D$

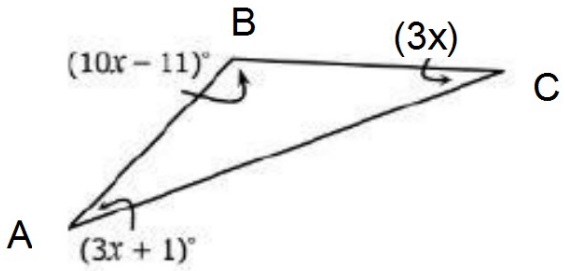
$d^2 = 2.1^2 + 3.5^2 - 2(3.5)(2.1)\cos 105$

$d = 2nd\ x^2$

$d = 4.5$ km

Closure Standard

Solve for x



$x = 11.875$

$(10x - 11) + (3x) + (3x + 1) = 180$

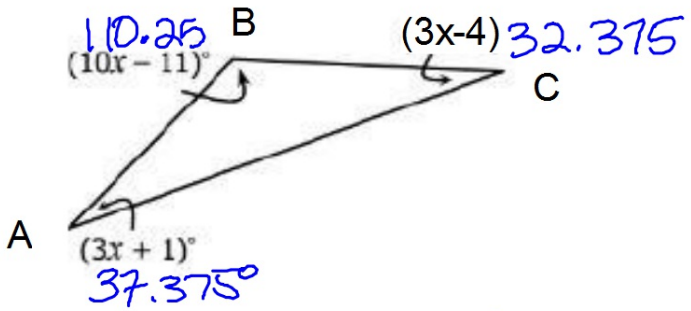
$16x - 10 = 180$

$+10 \quad +10$

$16x = 190$

Closure Honors

Solve for x and find angles A, B, C



$(10x-11)+(3x+1)+(3x-4)=180$

$16x-14=180$

$x=12.125$

now sub