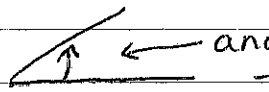
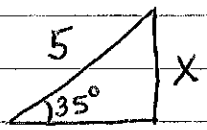
9.1 Math 11 AW - notes.

Angles of Elevation - to elevate means to go up

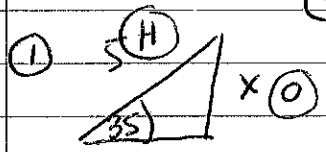


ex 1



→ using angle of elevation to find a side

① label the sides
② decide on which trig function to use
③ rearrange formula for x
④ do the math

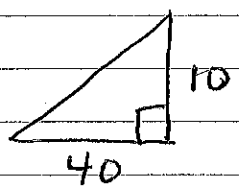
① 

② SOH CAH TOA

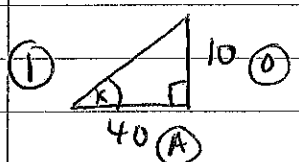
③ $\sin 35 = \frac{x}{5} \Rightarrow (\sin 35) \times 5 = x$

④ $(\sin 35) \times 5 = x$
$0.5736 \times 5 = x$
$2.87 = x$

→ TO FIND THE ANGLE



① label triangle
② decide on trig function
③ plug in & divide.
④ press 2nF or shift & trig button

① 

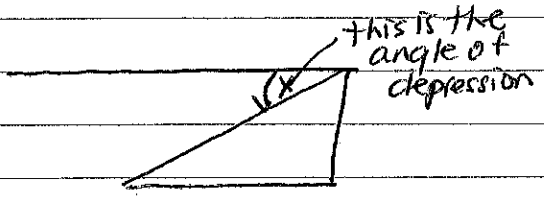
② SOH CAH TOA

③ $\tan x = \frac{10}{40} \Rightarrow \tan x = 0.25$

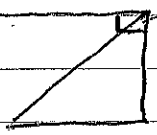
④ 2nF Tan (0.25) = 14°

9.2 Math II AW - notes

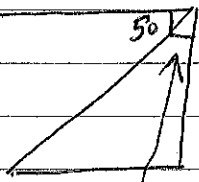
Angle of Depression - depress = goes down
- angle of depression is down from horizontal.



To find the angle inside the triangle



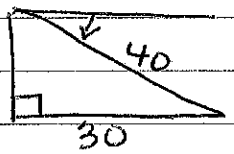
the side of the triangle is 90° to the horizontal ⇒



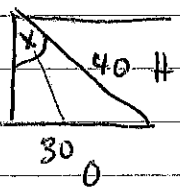
if angle of depression is 50°

⇒ 90° - 50° = 40°

eg



* Follow the same steps as the angle of elevation
  1. label sides (choose any angle)
  2. choose trig function
  3. divide
  4. press 2nd F + trig button
* 5. subtract to find angle of depression



← 1 2 SOH CAH TOA

3 $\sin x = \frac{30}{40}$ 4 2nd F sin (0.75) = 49°

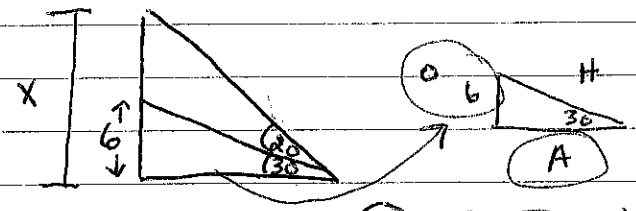
5 $90^\circ - 49^\circ = 41^\circ$ angle of depression

9.4 Math 11 AW - notes

Solving 2-triangle Problems

* Focus on one triangle at a time
* Solve missing value in 1st triangle that will help you solve the 2nd triangle

ex



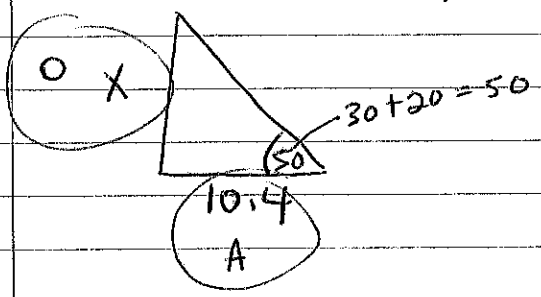
① Ask
* what would help find x ?
- find the length of the bottom

② use $\tan\measuredangle = \frac{O}{A}$

$$\tan 30 = \frac{6}{A}$$

$$A = \frac{6}{\tan 30} = 10.4$$

③ redraw large triange with new side



use $\tan\measuredangle = \frac{O}{A}$

$$\tan 50 = \frac{x}{10.4}$$

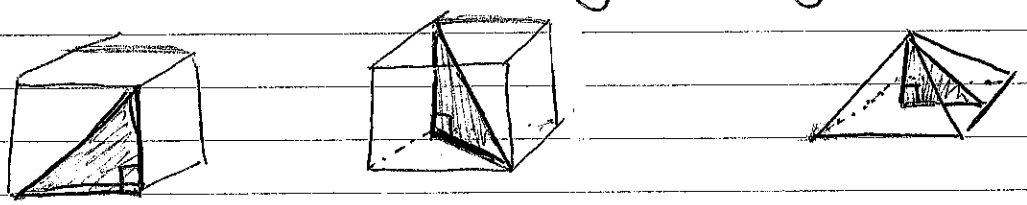
$$(\tan 50) \times 10.4 = x$$

$$12.4 = x$$

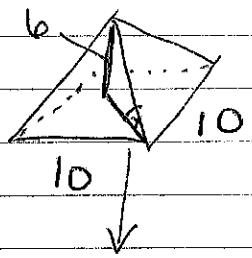
9.5 Math 11 AW - notes

3-D triangle Problems

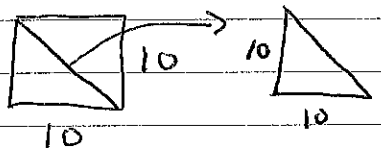
* look for the right angle triangle!



ex 1



→ ① you dont know the diagonal across the base



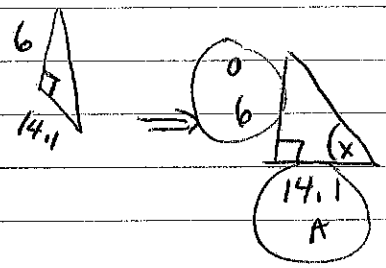
use pyth. theorem

$10^2 + 10^2 = c^2$

$\sqrt{200} = \sqrt{c^2}$

$c = 14.1$

②



Use $\tan x = \frac{O}{A}$ to find angle

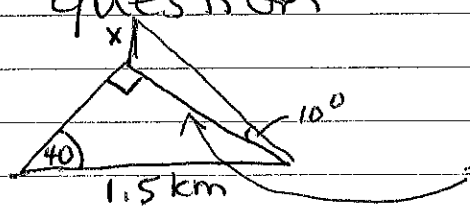
$\tan x = \frac{6}{14.1}$

$x = 23°$

Remember

* you may have to find one side 1st before you get to the side in the question

⑤



find this side 1st → so you can use this to find the h of the tower.