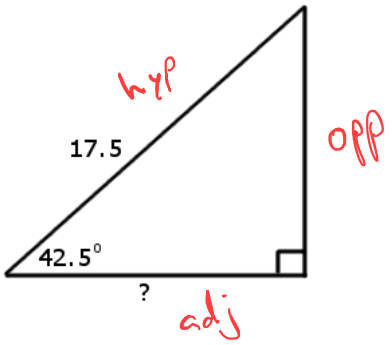
Name: _____ Trigonometry – 03

Steps to follow when using SOH CAH TOA

1. **Identify the angle**
2. **Label the sides** {opposite, adjacent, hypotenuse}
3. **Identify what you HAVE** and what you **WANT**
4. Write "**SOH – CAH – TOA**" and decide which one will work
5. Write the **formula** (ex.: $\frac{\sin A}{1} = \frac{opposite}{hypotenuse}$)
6. **Plug-in** the values and **solve** for the missing piece.

1) Find the side marked '?' in the right triangle below
Round each final answer to 1 decimal place.



SOH CAH TOA

$\frac{\cos 42.5}{1} = \frac{x}{17.5}$

$\frac{17.5(\cos 42.5)}{1} = x$

$12.9 = x$

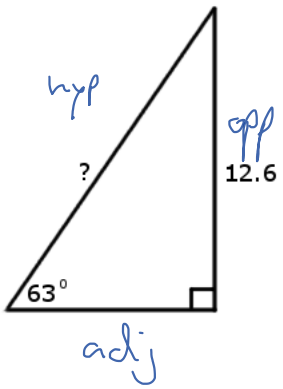
2) Find the side marked '?' in the right triangle below
Round each final answer to 1 decimal place.

SOH CAH TOA

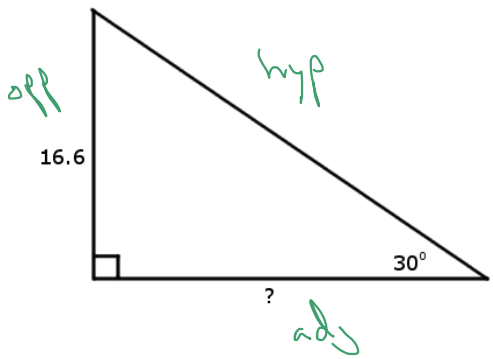
$\frac{\sin 63}{1} = \frac{12.6}{x}$

$\frac{12.6(1)}{\sin 63} = x$

$14.1 = x$



3) Find the side marked '?' in the right triangle below
Round each final answer to 1 decimal place.



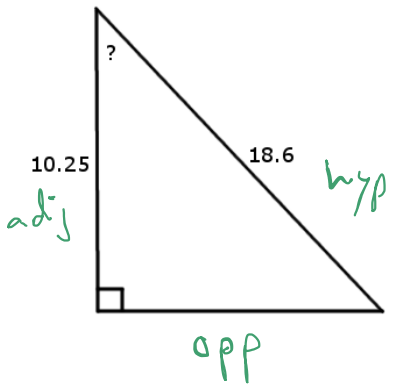
SOH CAH TOA

$\frac{\tan 30}{1} = \frac{16.6}{x}$

$\frac{16.6(1)}{\tan 30} = x$

$28.6 = x$

4) Find the angle marked '?' in the right triangle below
Round each final answer to 1 decimal place.



SOH CAH TOA

$\frac{\cos x}{1} = \frac{10.25}{18.6}$

$\frac{(1)10.25}{18.6} = \cos x$

$\cos^{-1} 0.551075 2 = \cos^{-1} \cos x$

$56.6 = x$

5) Find the angle marked '?' in the right triangle below
Round each final answer to 1 decimal place.

SOH CAH TOA

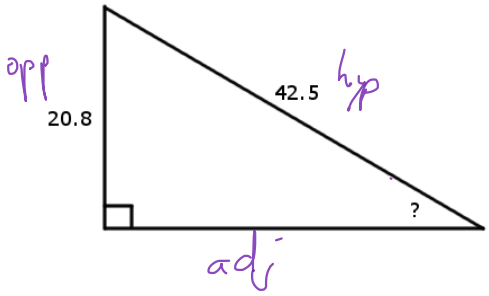
$\frac{\sin x}{1} = \frac{20.8}{42.5}$

$\frac{20.8(1)}{42.5} = \sin x$

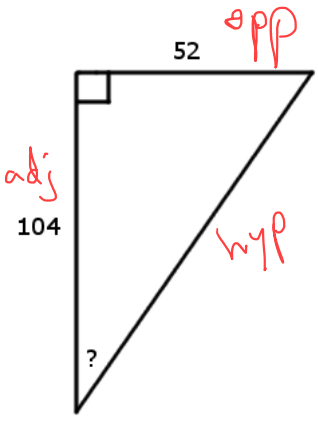
$\sin^{-1} \quad \sin^{-1}$

$0.489411 76 = \sin x$

$29.3 = x$



6) Find the angle marked '?' in the right triangle below
Round each final answer to 1 decimal place.



SOH CAH TOA

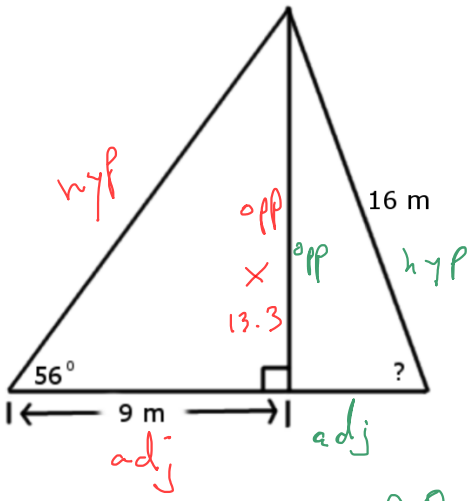
$\frac{\tan x}{1} = \frac{52}{104}$

$\frac{(1)52}{104} = \tan x$

$\tan^{-1} 0.5 = \tan^{-1} \tan x$

$26.6 = x$

7) Find the angle marked '?' in the right triangle below
Round each final answer to 1 decimal place.



SOH CAH TOA

$\frac{\tan 56}{1} = \frac{x}{9}$

$\frac{9(\tan 56)}{1} = x$

$13.3 = x$

SOH CAH TOA

$\frac{\sin x}{1} = \frac{13.3}{16}$

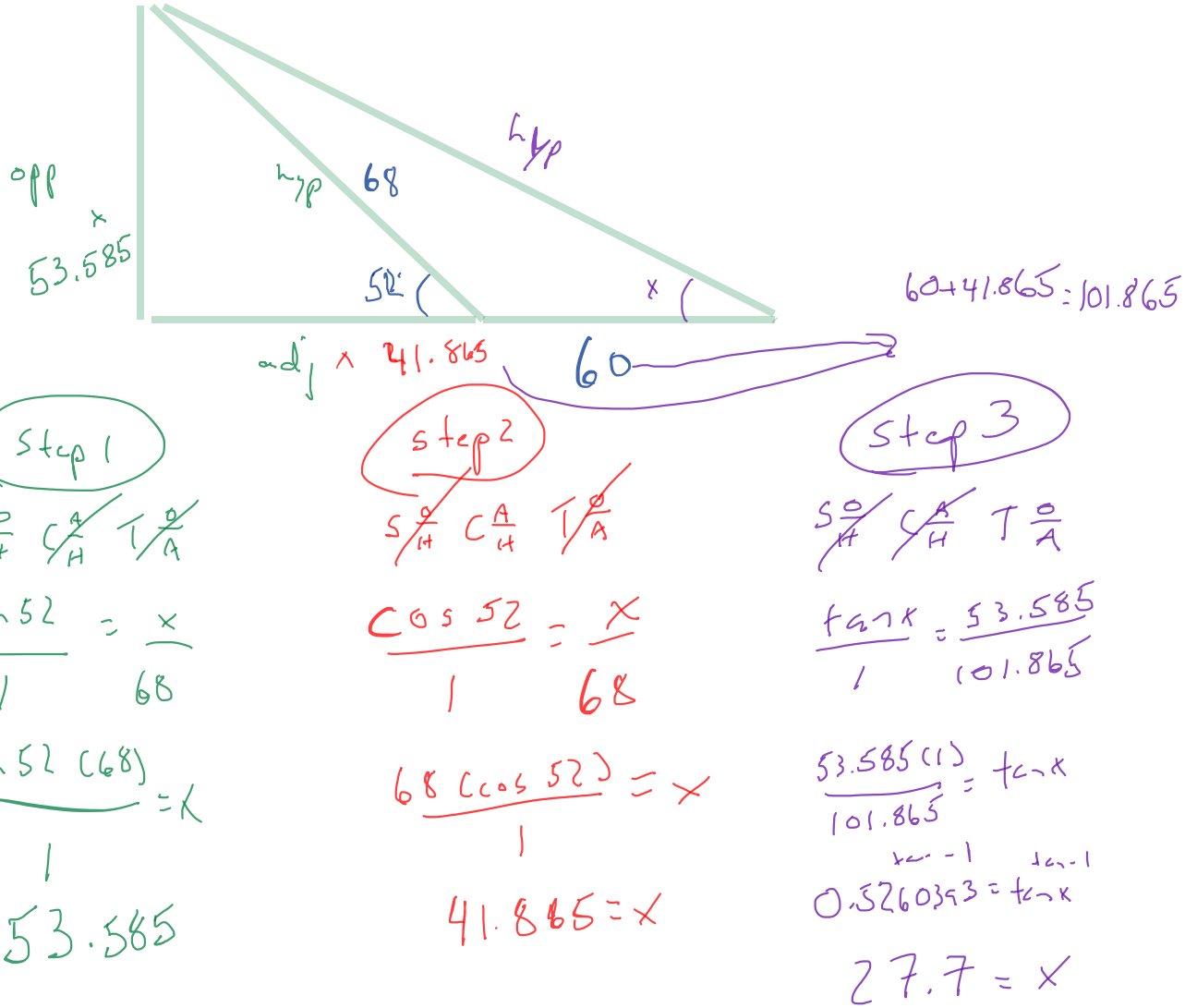
$\frac{13.3(1)}{16} = \sin x$

$\sin^{-1}(0.833125) = \sin^{-1}(\sin x)$

$56.5 = x$

CHALLENGE:

8) Chris is flying a kite using a 68 m long string.
When the kite is at its highest point, the string meets the ground at an angle of 52°
Malachi has made a potato gun and wants to blow Chris' kite out of the sky.
Malachi stands 60 meters behind Chris.
At what angle from the ground must Malachi aim the potato gun in order to hit the kite?
Round each final answer to 1 decimal place.



Answer: Malachi must aim the potato gun at an angle of 28 degrees.