

NOTES REVIEW TRIG TEST DAY 1

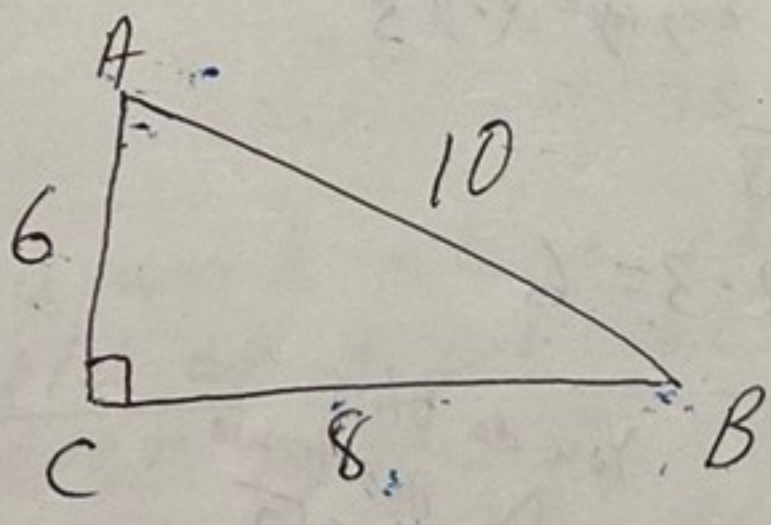
1.) What connections can be made between the angles and sides of right triangles?

- The side lengths ratio will affect the size of the angles.
- The size of the angles will affect the side lengths ratio.

2.) How are (trigonometric) right triangles used in real life?

- Sound waves (cell phones)
- Air Traffic Control and other navigation systems.
- In engineering and construction to find heights, lengths and angles.
- In warehouses to minimize storage space.

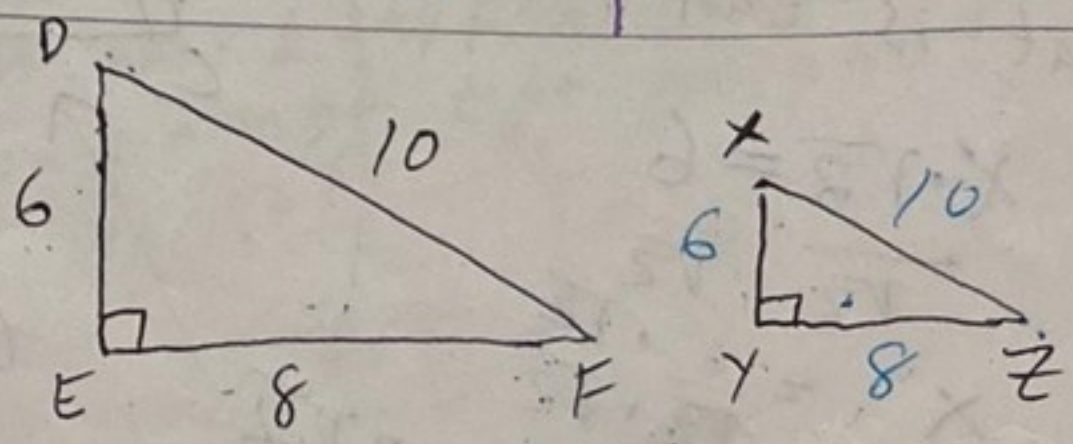
3.)



TRIG RATIO
$\sin A = 0.8 \text{ OR } \frac{8}{10}$
$\sin B = \frac{6}{10} \text{ OR } 0.6$
$\cos A = \frac{6}{10} \text{ OR } 0.6$
$\cos B = \frac{8}{10}$
$\tan A = \frac{8}{6}$
$\tan B = \frac{6}{8}$

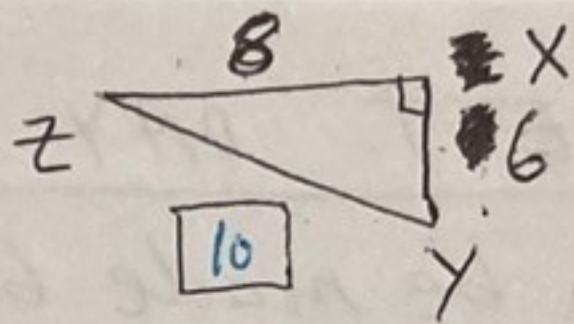
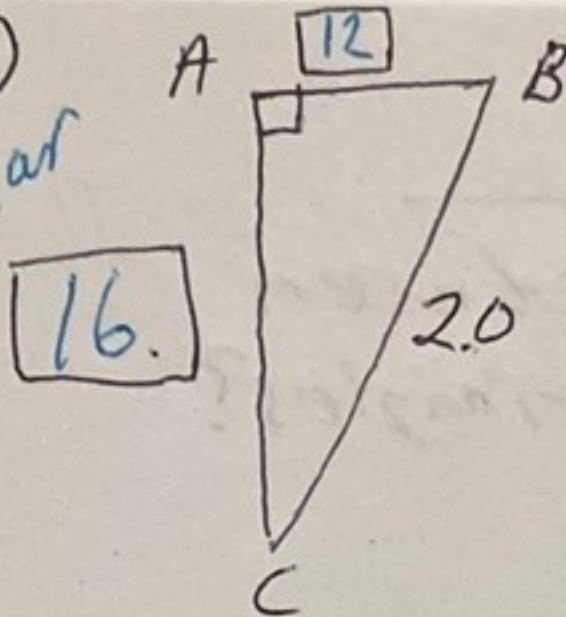
ANGLE
$\sin^{-1} 0.8 = 53.1^\circ$
$\sin^{-1} 0.6 = 36.9^\circ$
$\cos^{-1} 0.6 = 53.1^\circ$
$\cos^{-1} 0.8 = 36.9^\circ$
$\tan^{-1} 1.3333 = 53.1^\circ$

4.) The triangles are similar. Select all tangent angles that are equal  
 $\frac{8}{6}$



$\angle D \quad \angle X$

5.) Similar



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 6^2 + 8^2 &= c^2 \\
 36 + 64 &= c^2 \\
 100 &= c^2 \\
 10 &= c
 \end{aligned}$$

Example of pythagorean triple: 6, 8, 10; 3, 4, 5; 5, 12, 13

a) Label the missing lengths.

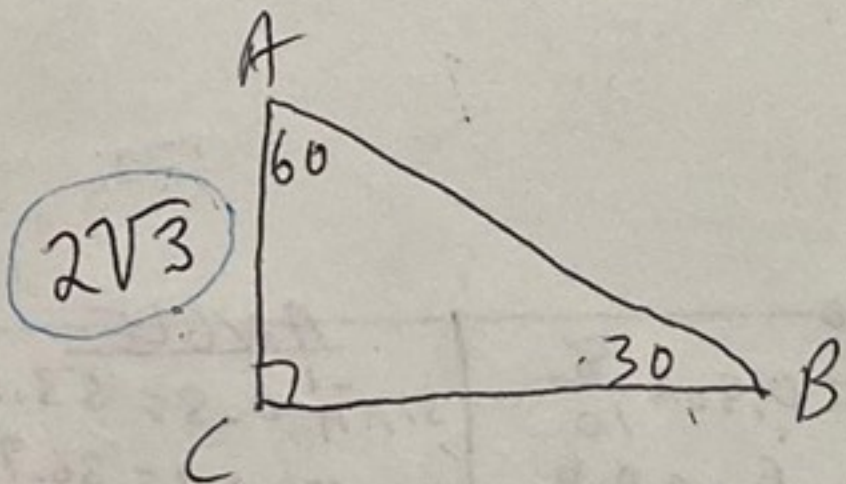
b) Select true or false:

$$\frac{16}{20} \sin(B) = \sin(Y) \frac{8}{10} \quad T$$

$$\frac{12}{20} \cos(B) > \cos(Z) \frac{8}{10} \quad F$$

$$\frac{16}{12} \tan(B) > \tan(Y) \frac{8}{6} \quad F$$

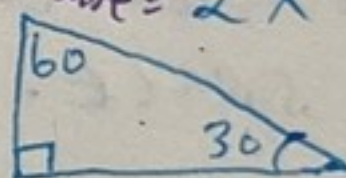
6.) What are the lengths of the missing sides?



You do this: ↘

Hypotenuse = 2X

short leg = X



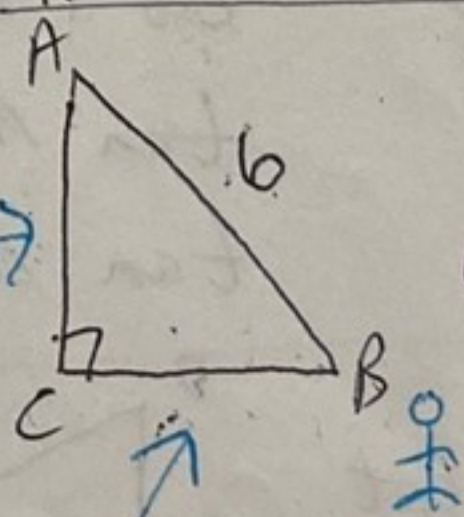
long leg = X · √3

Hypotenuse = 2X so  $2 \cdot \frac{2\sqrt{3}}{2} = 4\sqrt{3}$

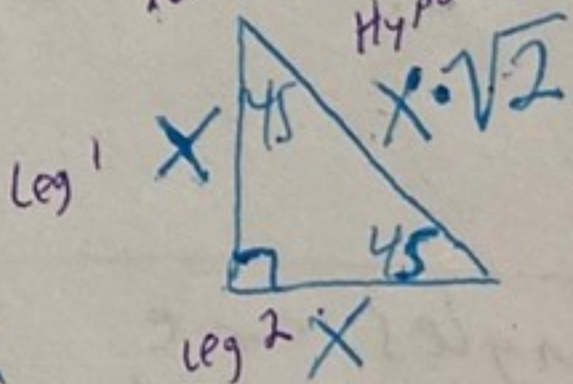
Long side = X · √3 so  $2 \cdot \frac{3}{\sqrt{3}} \cdot \sqrt{3} = 2 \cdot 3 = 6$

7.) Triangle ABC is isosceles. what is tan B?

45-45-90



You do this:



$$X \cdot \sqrt{2} = 6$$

$$X = \frac{6 \cdot \sqrt{2}}{\sqrt{2} \cdot \sqrt{2}}$$

$$X = \frac{6 \cdot \sqrt{2}}{2} = 3\sqrt{2}$$

$$\tan B = \frac{3\sqrt{2}}{3\sqrt{2}} = 1$$

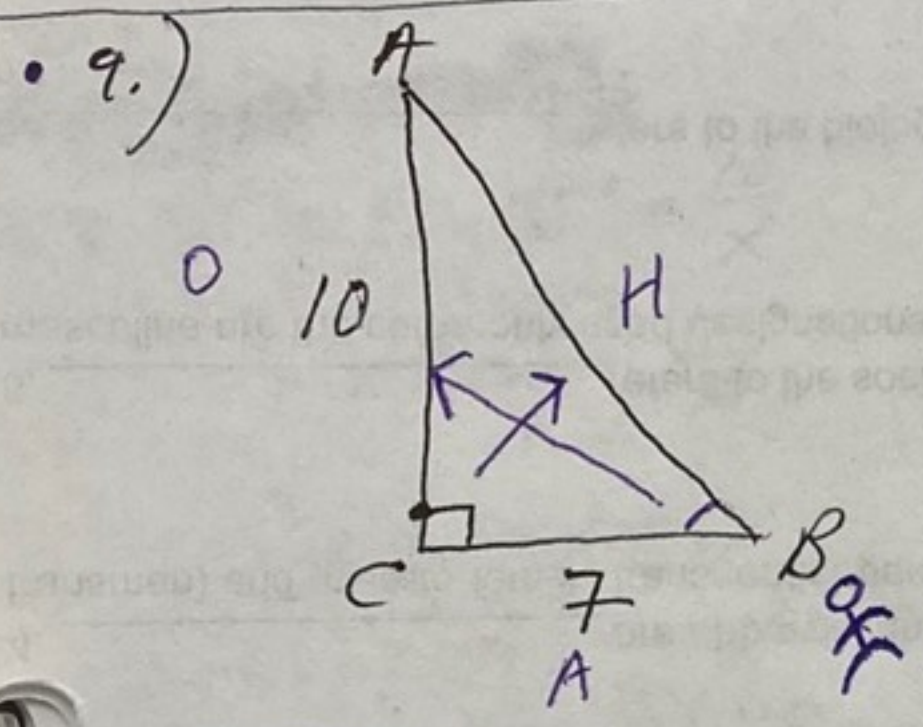
REVIEW FOR TRIG TEST DAY 2

L145  
(b)

8.) **EX.1**  
 $\cos 68 \approx 0.3746$   
 What is the sine of the complementary angle?

$\sin(90-68) = \sin 22 \approx 0.3746$

**EX.2**  
 $\sin 14 \approx 0.2419$   
 $\cos 76 \approx 0.2419$



Find  $\angle B$

$\frac{O}{A} \rightarrow$  use  $\tan \theta = \frac{10}{7} \approx 1.4285$   
 OR  $\tan B$

Now use the  $\tan^{-1}$  to find the angle:  
 $1.4285 \tan^{-1} = 55^\circ$

10.) Find  $\angle A$

Find  $\angle A$  in question 9.  
 Do what you did above  
 OR just calculate  $180-90-55 = 35^\circ$

11.) You work at a ski-resort. You want to build an artificial ski-run. It can't be steeper than  $19^\circ$ . The ~~diagonal~~ diagonal length from the top of the ski-run to the bottom is 150 ft. The proposed model shows that vertical height of the ski-run is 57 ft. a) Will this design work? b) If not how do you change the height?

