

1) List the following. Simplify fully.

$$\sin A = \frac{5}{13}$$

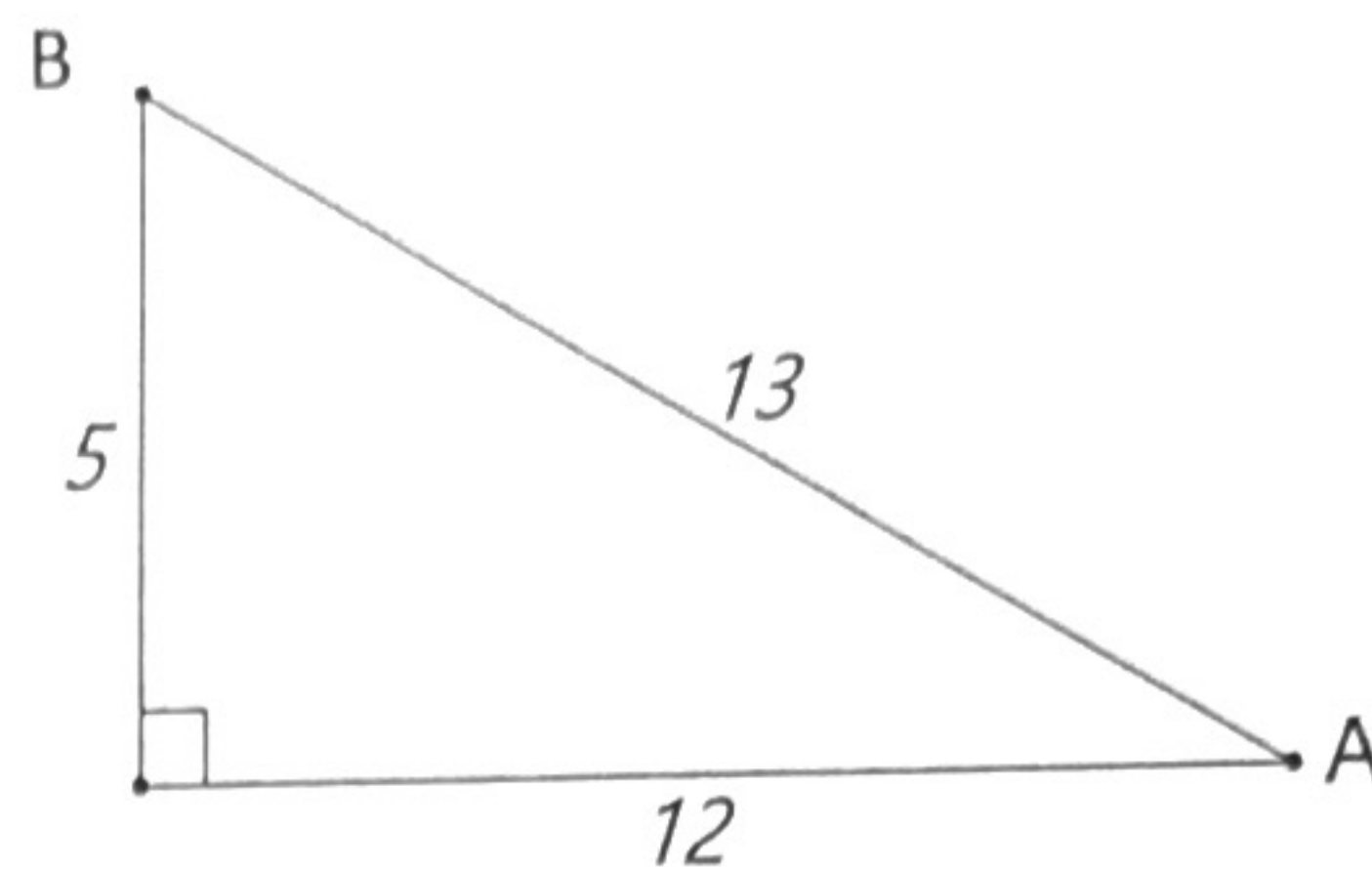
$$\cos A = \frac{12}{13}$$

$$\tan A = \frac{5}{12}$$

$$\sin B = \frac{12}{13}$$

$$\cos B = \frac{5}{13}$$

$$\tan B = \frac{12}{5}$$



2) Decide if the following sides make a RIGHT, ACUTE, or OBTUSE triangle:

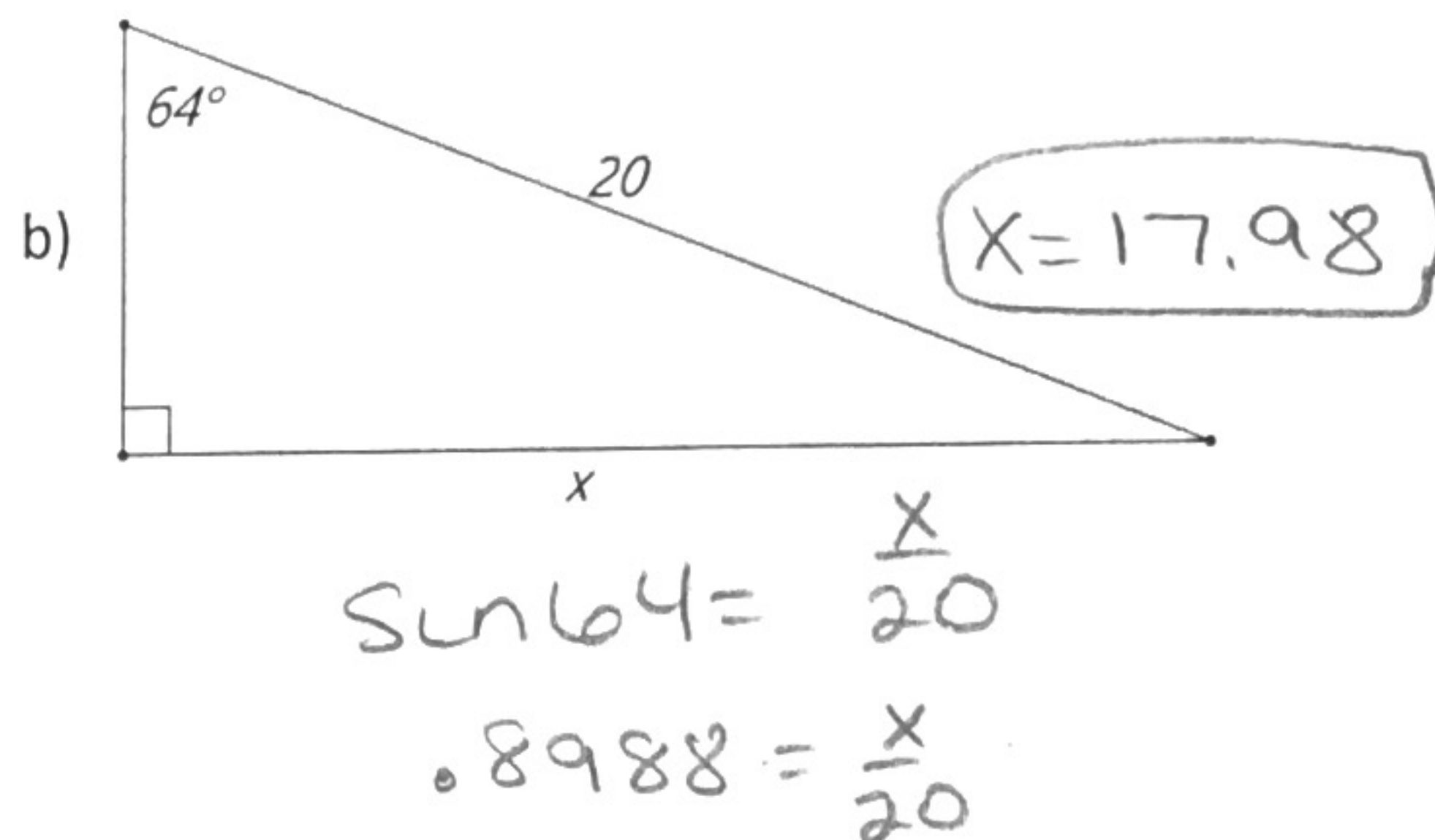
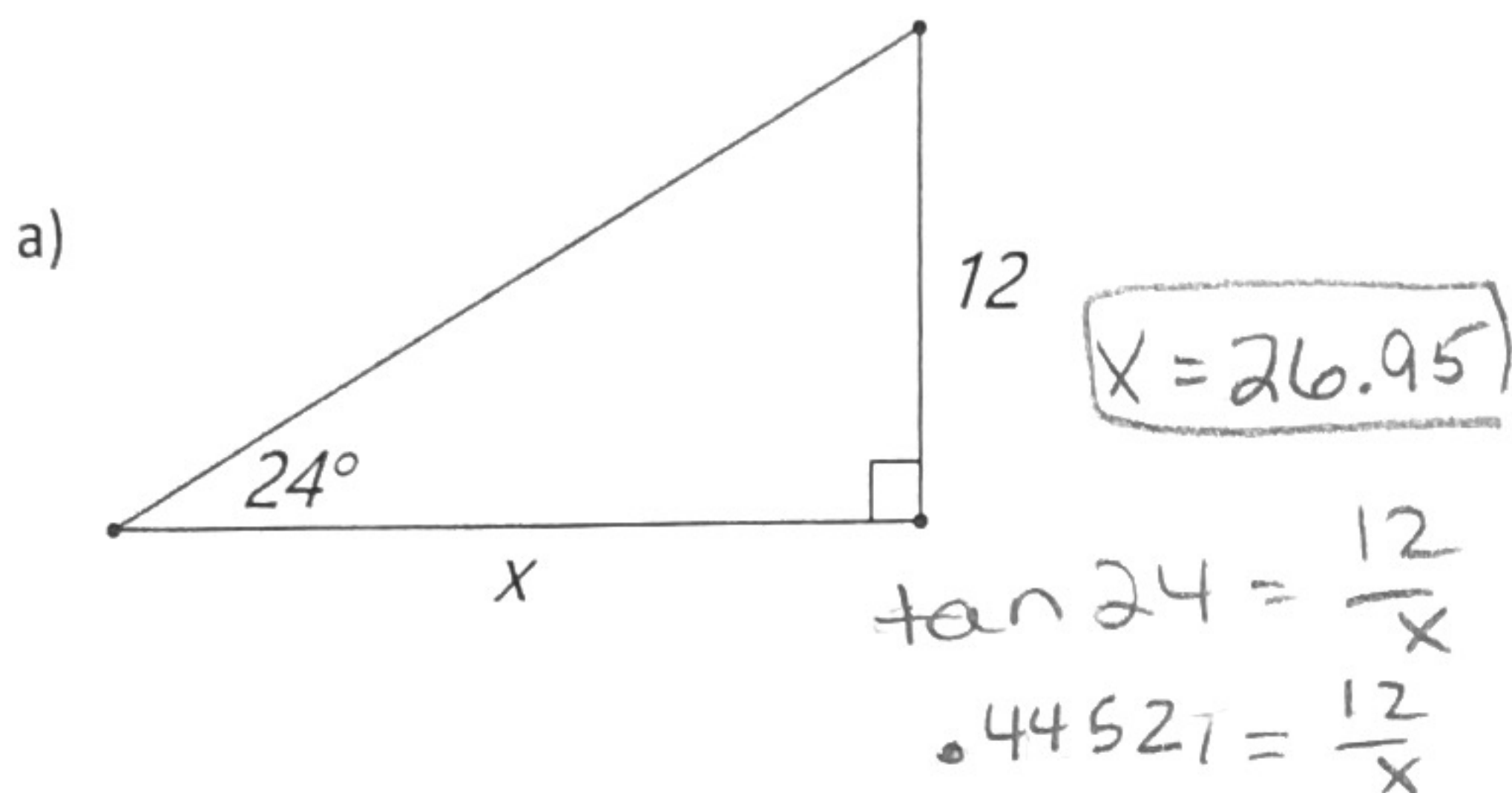
a. 6, 8, 10 **RIGHT**
 $6^2 + 8^2 = 10^2$
 $36 + 64 = 100$
 $100 = 100$

b. 5, 6, 10 **OBTUSE**
 $5^2 + 6^2 < 10^2$
 $25 + 36 < 100$
 $61 < 100$

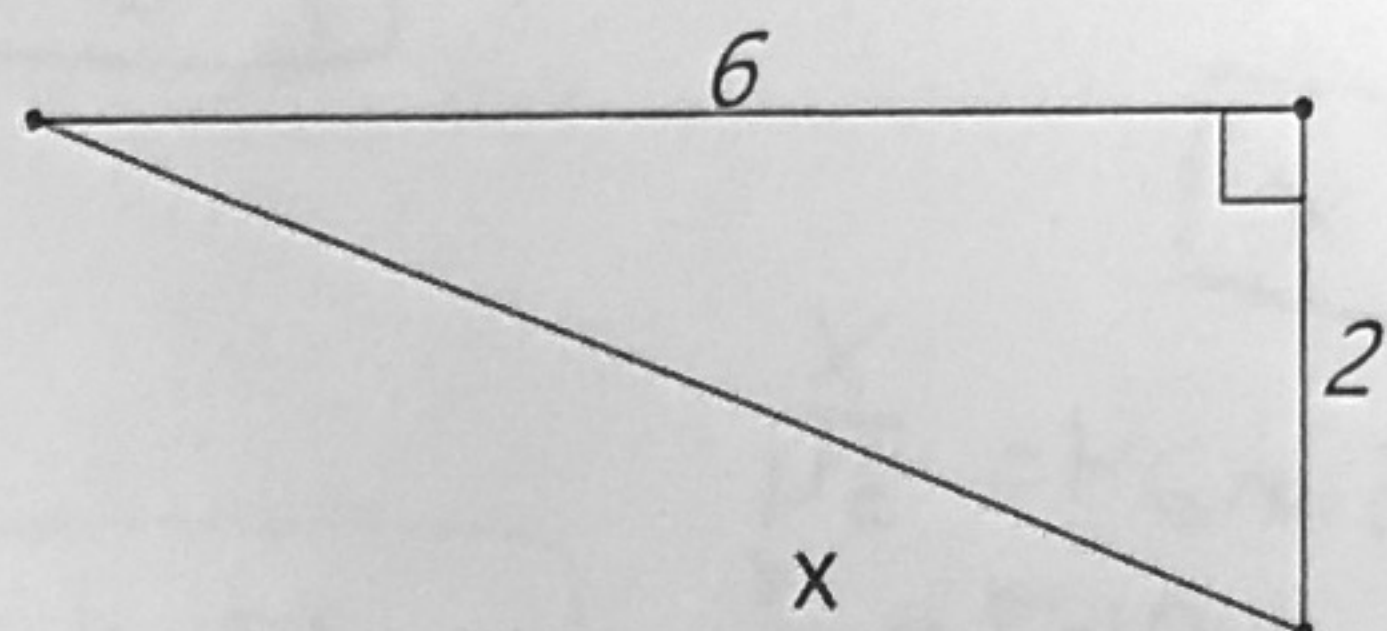
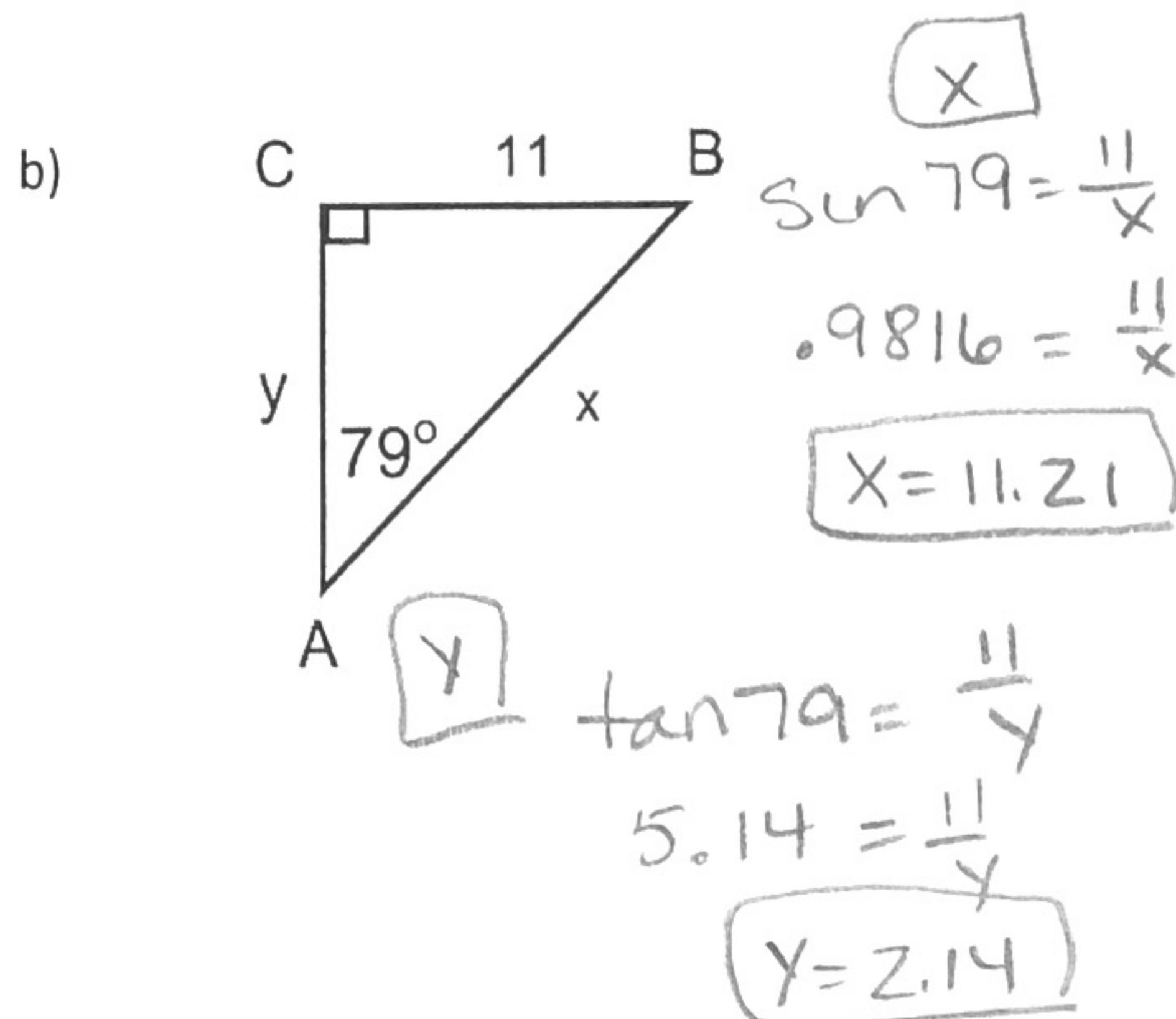
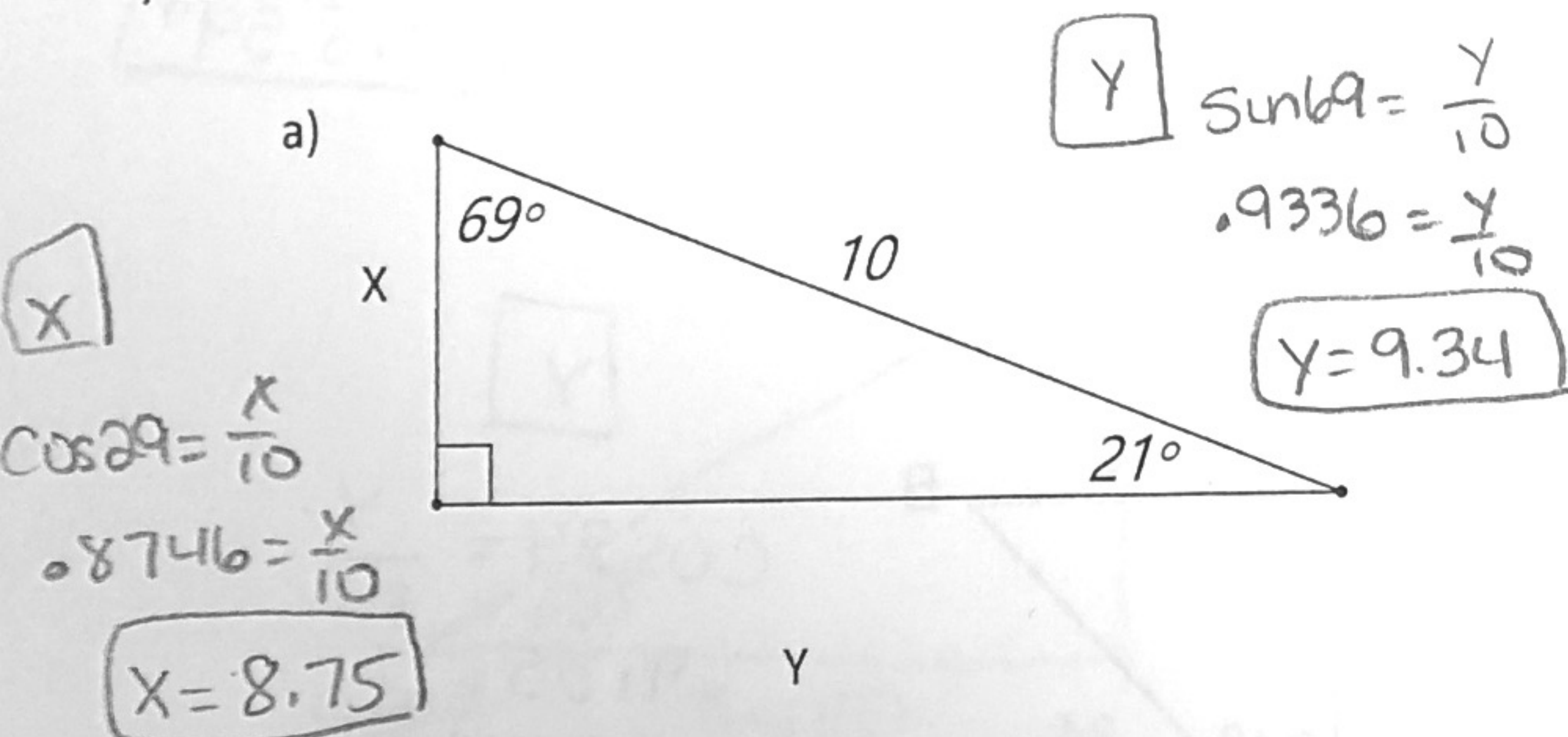
c. 4, 4, 5 **ACUTE**
 $4^2 + 4^2 > 5^2$
 $16 + 16 > 25$

USE TRIG RATIOS TO SOLVE FOR X:

3) Find the value of x.



4) Solve for the missing side lengths in the following triangles.



What theorem do I use to find x?

$$a^2 + b^2 = x^2$$

$$6^2 + 2^2 = x^2$$

$$36 + 4 = x^2$$

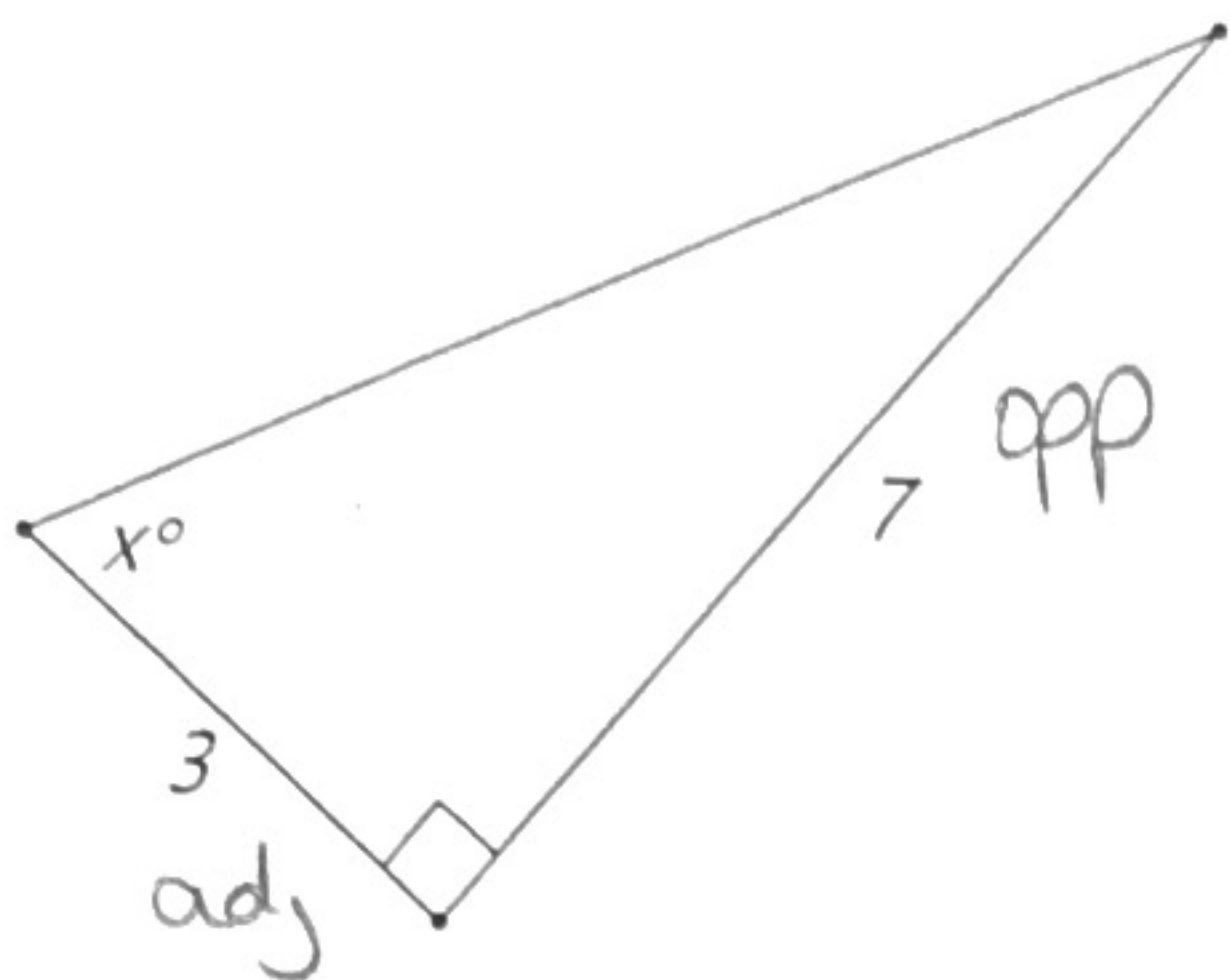
$$x^2 = 40$$

$$x = \sqrt{40}$$

$$x = 2\sqrt{10}$$

X = 6.32

5) Find the measure of the marked acute angle to the nearest degree. (Use Inverse Trig)

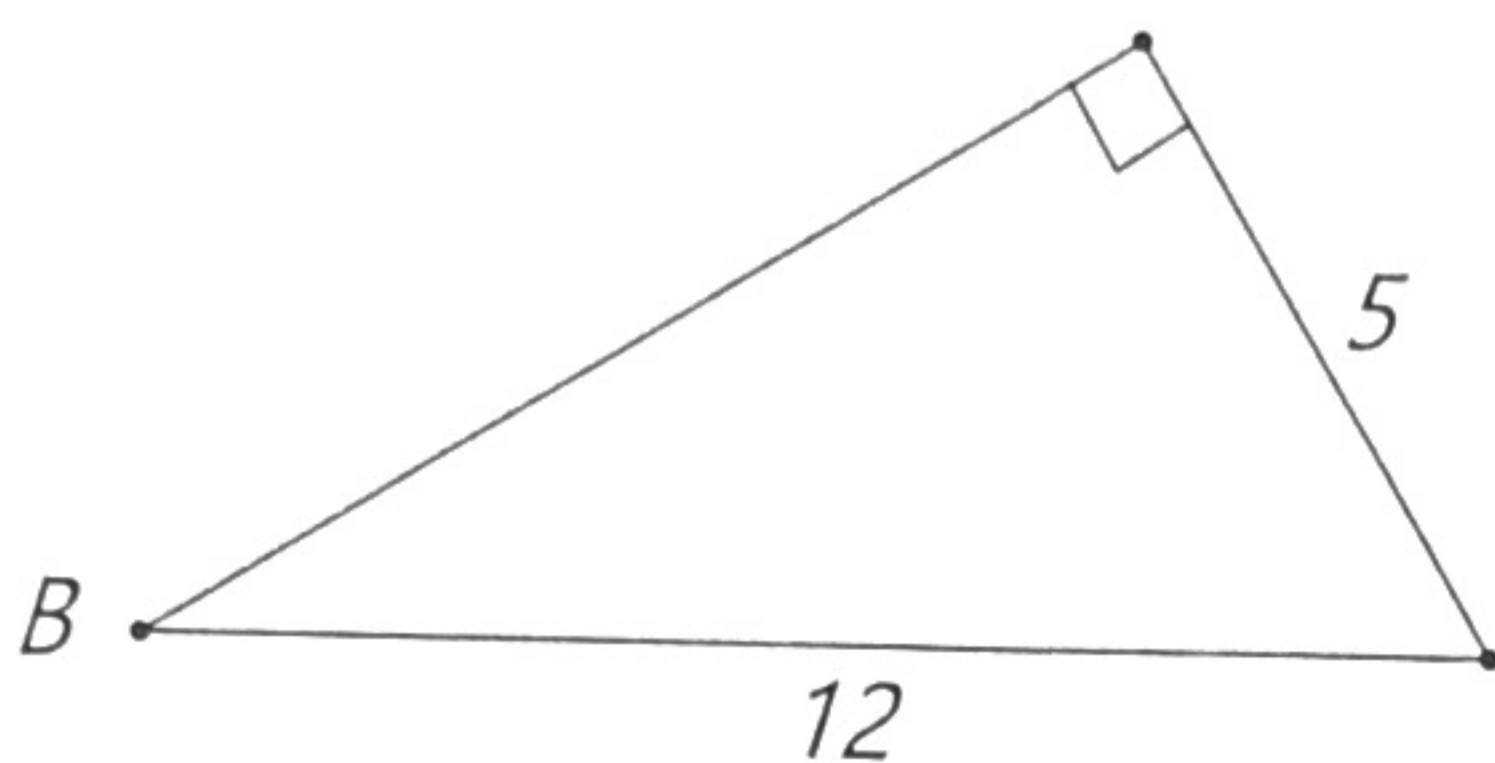


$$\tan x = \frac{7}{3}$$

$$\tan^{-1}\left(\frac{7}{3}\right) = x$$

$$x = 66.80^\circ$$

6) Use a calculator to approximate the measure of $\angle B$ to the nearest tenth of a degree. (Use Inverse Trig)



$$\sin B = \frac{5}{12}$$

$$\sin^{-1}\left(\frac{5}{12}\right) = B$$

$$\angle B = 24.62^\circ$$

7) Find the angle measurements and missing side length.

$$m\angle A = 90^\circ$$

$$m\angle B = 48.59^\circ$$

$$m\angle C = 41.41^\circ$$

$$AB = 10.58$$

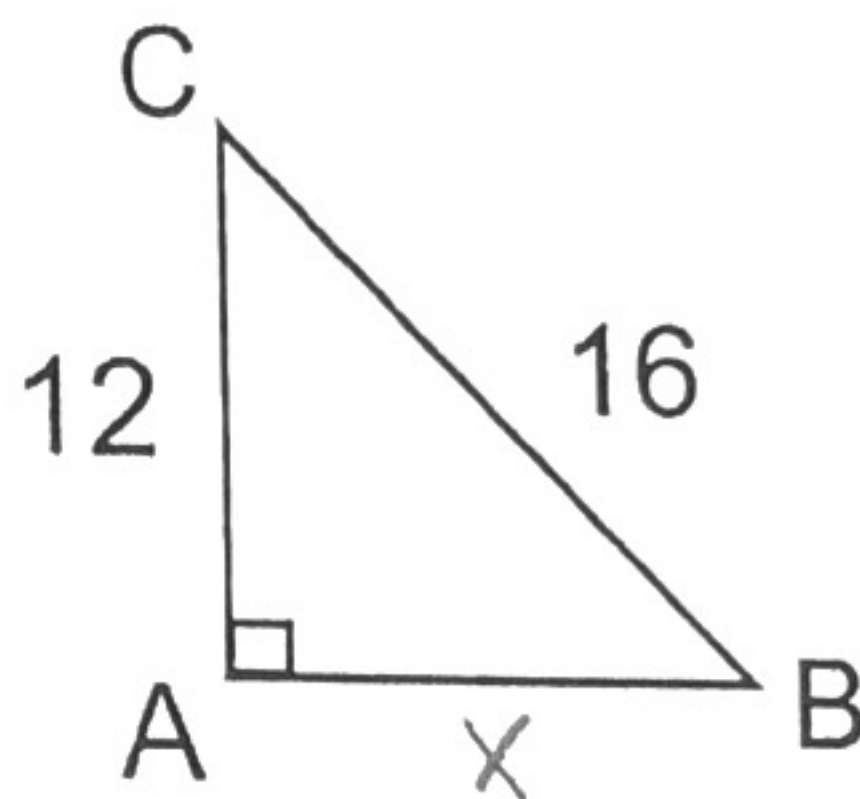
$$x \text{ or } \overline{AB}$$

$$12^2 + x^2 = 16^2$$

$$144 + x^2 = 256$$

$$x^2 = 112$$

$$x = 10.58$$



$$\sin B = \frac{12}{16}$$

$$\sin^{-1}\left(\frac{12}{16}\right) = B$$

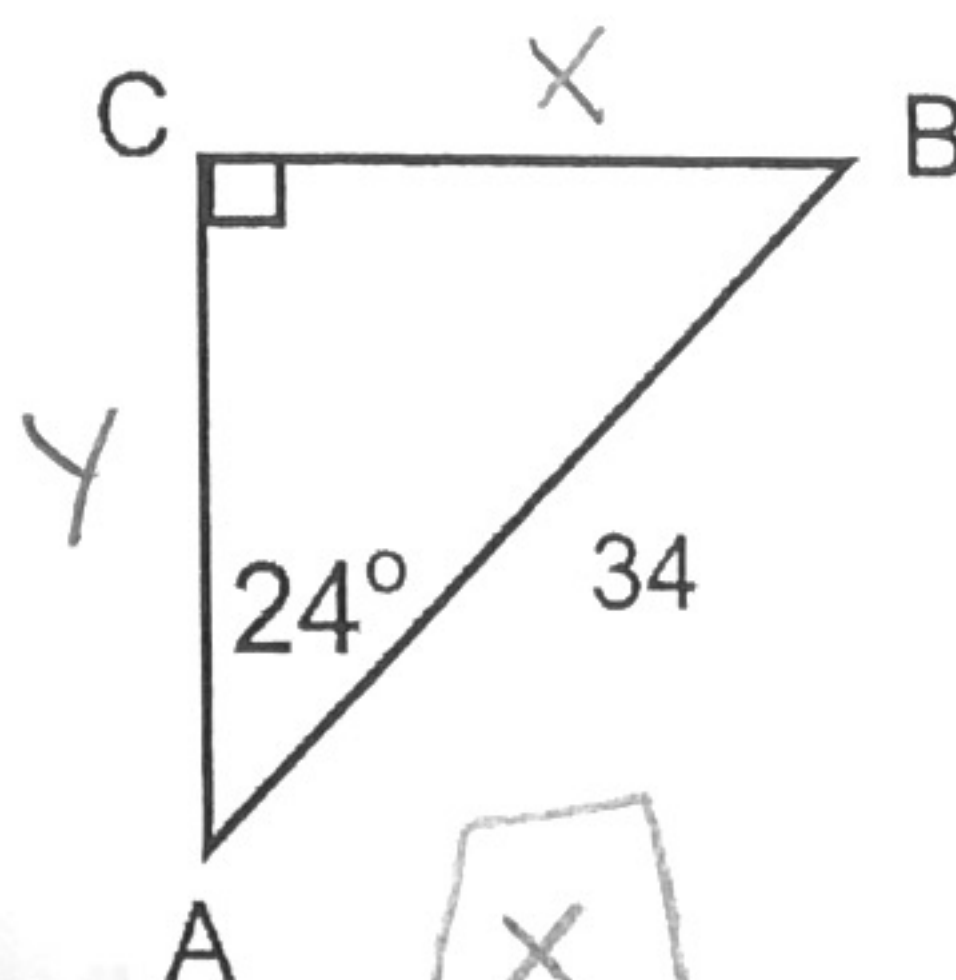
$$\angle B = 48.59^\circ$$

8) Solve for the triangle.

$$x = 13.83$$

$$y = 31.06$$

$$m\angle B = 66^\circ$$



$$\cos 24 = \frac{y}{34}$$

$$.9135 = \frac{y}{34}$$

$$y = 31.06$$

$$\sin 24 = \frac{x}{34}$$

$$.4067 = \frac{x}{34}$$

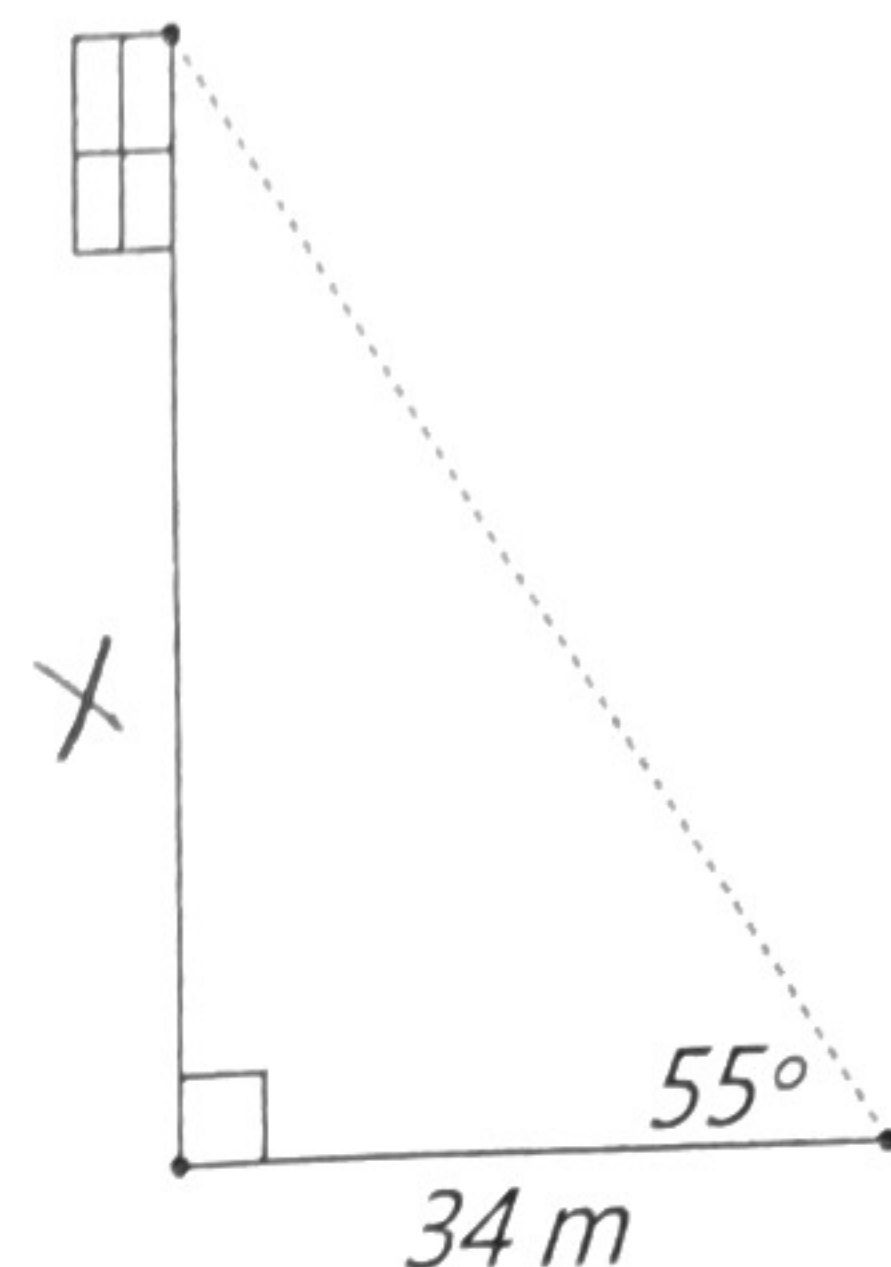
$$x = 13.83$$

9) A photographer points a camera at a window in a nearby wall, forming an angle of 55° with the camera platform. If the camera is 34 meters from the wall, how high above the platform is the window, to the nearest tenth of a meter?

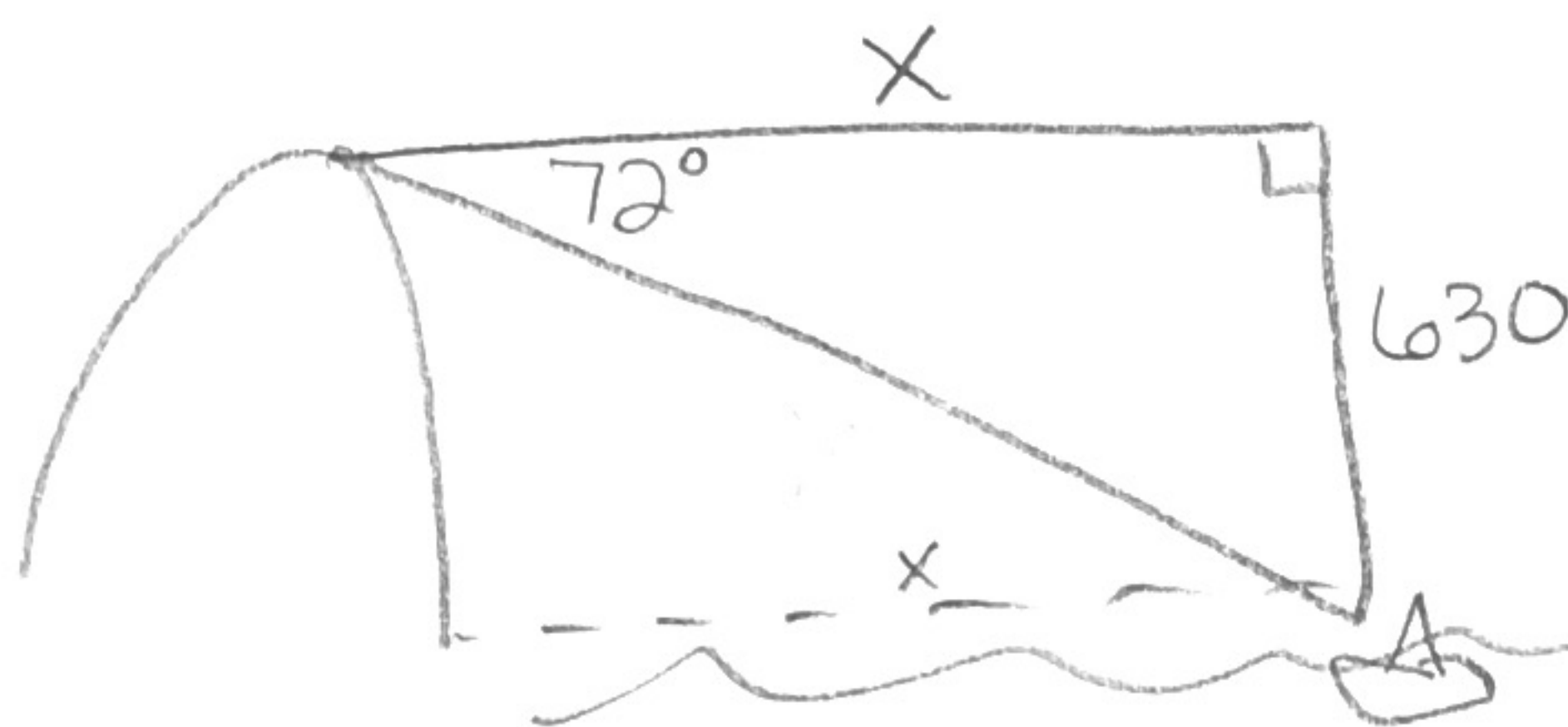
$$\tan 55 = \frac{x}{34}$$

$$1.428 = \frac{x}{34}$$

$$x = 48.56 \text{ m}$$



10) On the observation platform in the Arch, Hairy Pitts is approximately 630 feet above the ground. He spies a ship in the Mississippi River and measures the angle of depression as 72° . Find the distance from the ship to the base of the arch. (Hint: Draw a picture!)

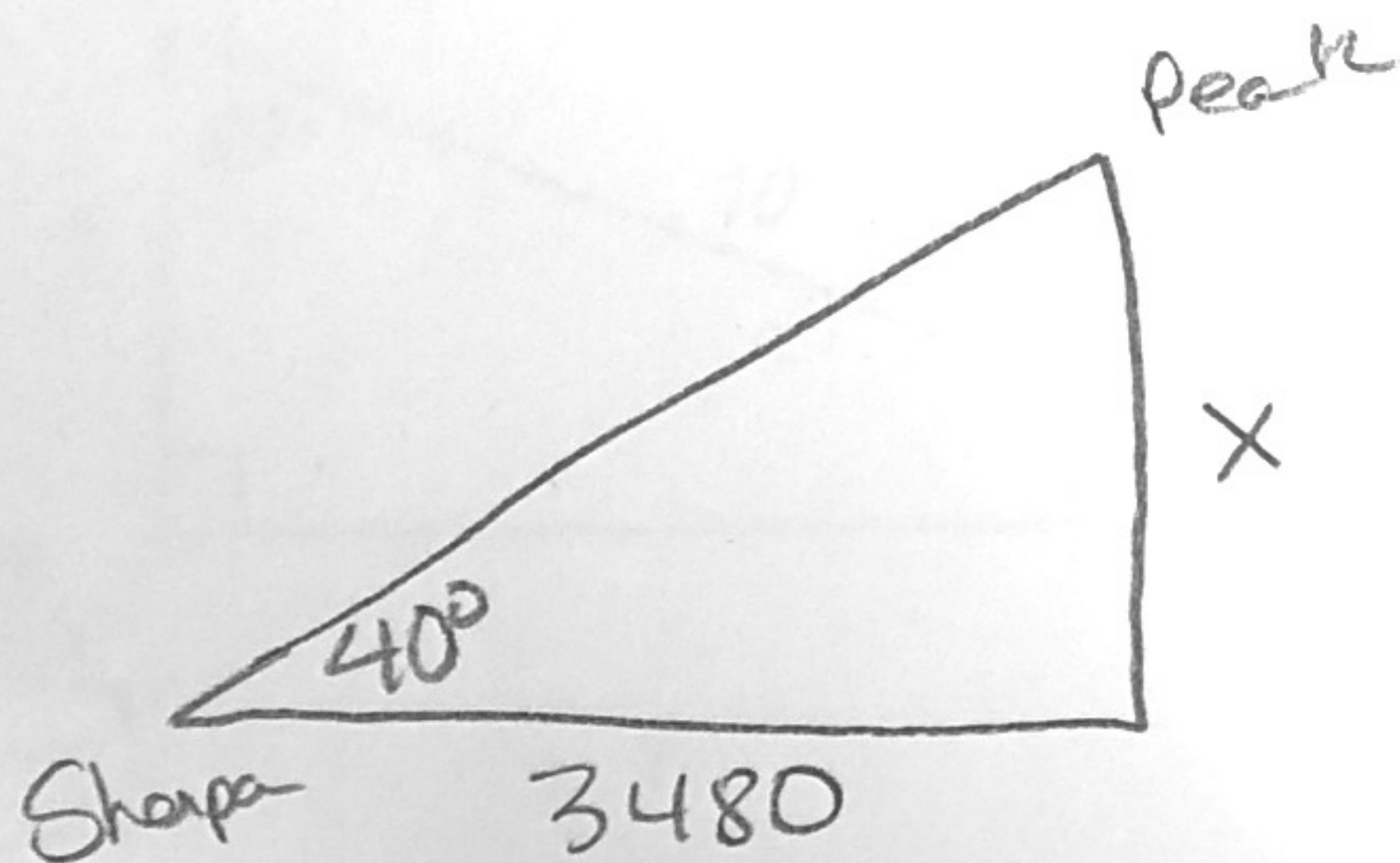


$$\tan 72 = \frac{630}{x}$$

$$3.077 = \frac{630}{x}$$

$$x = 204.75 \text{ ft}$$

11) A Sherpa measures the angle of elevation of a mountain peak as 40° . A map indicates that it is 3480 meters from his location. How high is the mountain peak above the ground? (Hint: Draw a picture!)



$$\tan 40 = \frac{x}{3480}$$

$$0.8391 = \frac{x}{3480}$$

$$x = 2920.07 \text{ m}$$