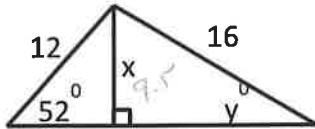


Use trigonometry to solve each problem. Remember all trigonometry calculations should be completed using a minimum of three decimal places. Round all final answers to the tenth if needed.

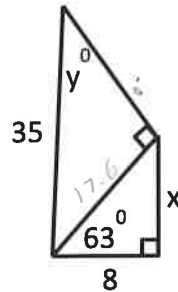


$$\sin 52 = \frac{x}{16}$$

$$9.5 = x$$

$$\sin y = \frac{9.5}{16}$$

$$y = 36.4^\circ$$



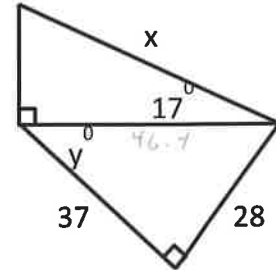
$$\tan 63 = \frac{x}{8}$$

$$15.7 = x$$

$$\cos 63 = \frac{8}{H} \quad H = 17.6$$

$$\sin y = \frac{17.6}{35}$$

$$y = 30.2^\circ$$



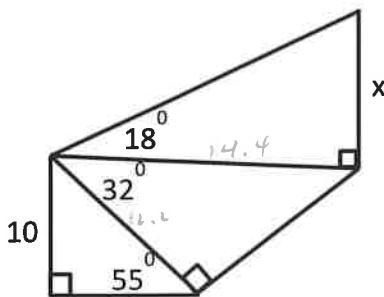
$$\tan y = \frac{28}{37}$$

$$y = 37.1$$

$$\sin 37.1 = \frac{28}{H} \quad H = 46.4$$

$$\cos 17 = \frac{46.4}{x}$$

$$x = 48.5$$



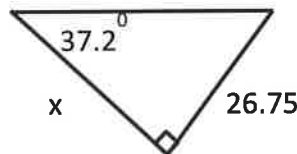
$$\sin 55 = \frac{10}{H} \quad H = 12.2$$

$$\cos 32 = \frac{12.2}{H}$$

$$H = 14.4$$

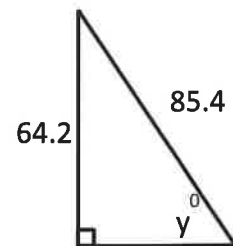
$$\tan 18 = \frac{x}{14.4}$$

$$x = 4.7$$



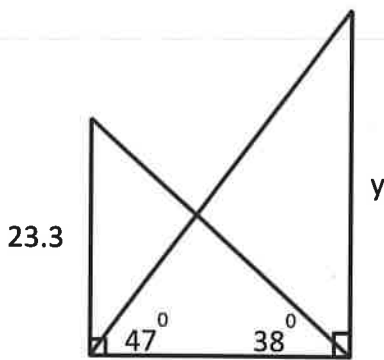
$$\tan 37.2 = \frac{26.75}{x}$$

$$x = 35.2$$



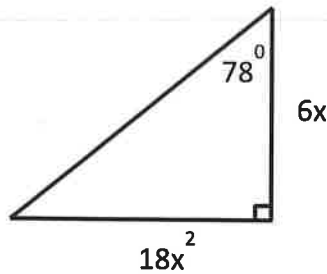
$$\sin y = \frac{64.2}{85.4}$$

$$y = 48.7^\circ$$



$$\tan 38 = \frac{23.3}{x} \quad x = 29.8$$

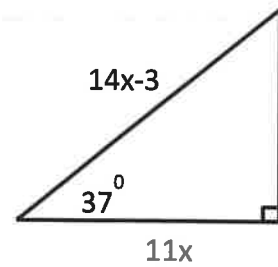
$$\tan 47 = \frac{y}{29.8} \quad y = 30$$



$$\tan 78 = \frac{18x^2}{6x}$$

$$4.705 = 3x$$

$$1.6 = x$$



$$\cos 37 = \frac{11x}{14x-3}$$

$$.799 = \frac{11x}{14x-3}$$

$$11.186x - 2.397 = 11x$$

$$.186x = 2.397$$

$$x = 12.9$$

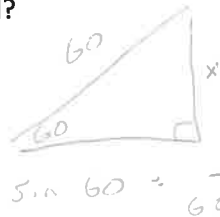
A 16 foot ladder is placed so that it makes an 80° angle with the ground. How far up the wall does it reach?



$$\sin 80 = \frac{x}{16}$$

$$15.8' = x$$

A kite is tied to a string that is pinned to the ground. The string is 60 feet long and makes a 60° with the ground. How high is the kite above the ground?



$$\sin 60 = \frac{x}{60}$$

$$52' = x$$

An airplane begins a 14° climb and flies for 2 ground miles. What is the change in the planes altitude?



$$\tan 14 = \frac{x}{2}$$

$$x = .5 \text{ miles}$$

A 60 foot tall tree, cast a 10 foot shadow. What is the angle at which the sunlight meets the ground? Approximately what time of day is it, 9am, 1pm, 6pm?



$$\tan x = \frac{60}{10}$$

$$x = 80.5^\circ$$

1 pm
Sun is High
MIDDAY

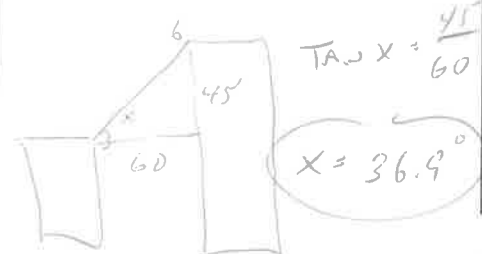
The escalator at the local mall is 130 feet long and rises on a 28° angle. How high is the second floor above the first floor?



$$\sin 28 = \frac{x}{130}$$

$$x = 61'$$

When Mary looks out the window of the 3rd floor at work, she can see her friend Jane in the building next door. The buildings are 60 feet apart and each floor is 15 feet tall. If Jane works on the 6th floor, what is the angle of elevation (looking up from the horizontal) for Jane to see Mary?



$$\tan x = \frac{45}{60}$$

$$x = 36.9^\circ$$