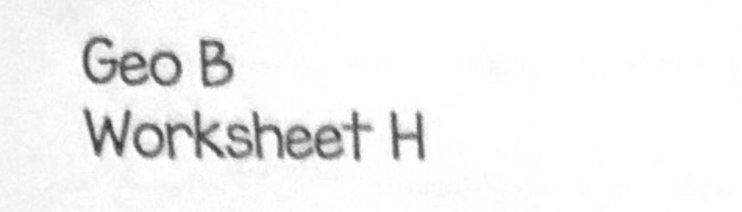
Geo B
Worksheet H

Name Key

Solve the following.

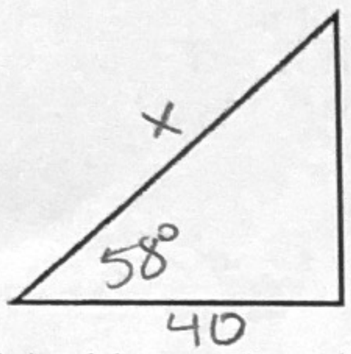
1. A pilot, flying at an altitude of 5000 feet, wishes to approach the numbers on a runway at an angle of 10 degrees. Approximate, to the nearest 100 feet, the distance from the airplane to the numbers at the beginning of the descent.



$\sin 10 = \frac{5000}{x}$

$x = 28785.26ft$

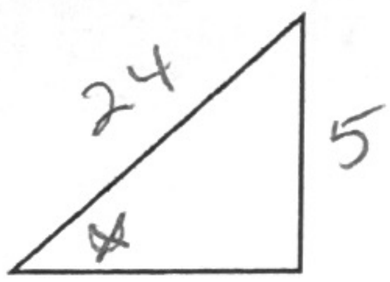
2. A guy wire is attached to the top of a radio antenna and to a point on horizontal ground that is 40.0 meters from the base of the antenna. If the wire makes an angle of 58 degrees with the ground, approximate the length of the wire.



$\cos 58 = \frac{40}{x}$

$x = 75.49m$

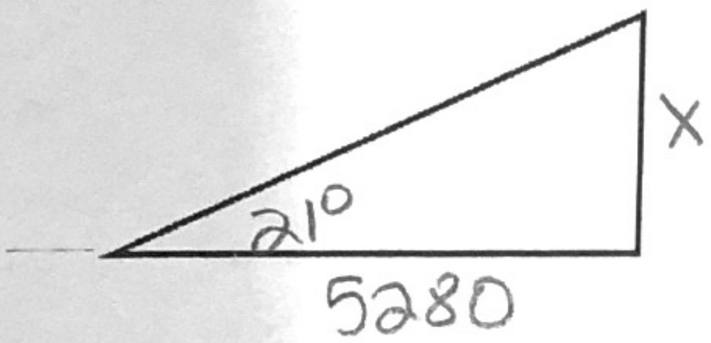
3. A builder wishes to construct a ramp 24 feet long that rises to a height of 5 ft above level ground. Approximate the angle that the ramp should make with the horizontal.



$\sin x = \frac{5}{24}$

$x = 12°$

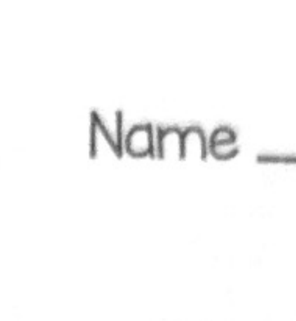
4. The tallest man made structure in the world is a tower located near Fargo, ND. From a distance of 1 mile on level ground its angle of elevation is 21 degrees. Determine its height to the nearest foot. (5280 ft in a mile)



$\tan 21 = \frac{x}{5280}$

$x = 2026.80ft$

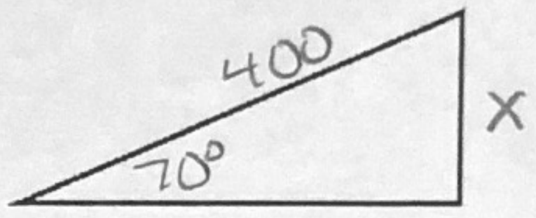
5. A ladder 20 feet long leans against the side of a building, and the angle between the ladder and the ground is 22 degrees. Approximate the distance from the bottom of the ladder to the building.



$\cos 22 = \frac{x}{20}$

$x = 18.54ft$

6. You are flying a kite at an angle of 70 degrees. You have let out a total of 400 feet of string and are holding the reel steady 4 feet above ground. How high above ground is the kite?



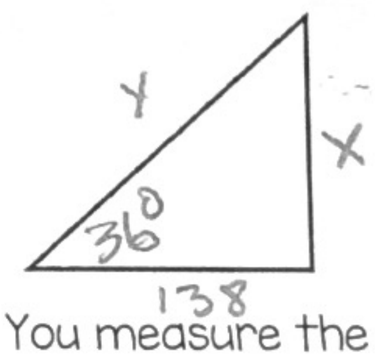
$\sin 70 = \frac{x}{400}$

$x = 375.88$

$+4$

$379.88ft$

7. The Falls Incline Railway at Niagara Falls has an angle of elevation of 36 degrees. The railway extends a horizontal distance of about 138 feet. Find the height and length of the railway.



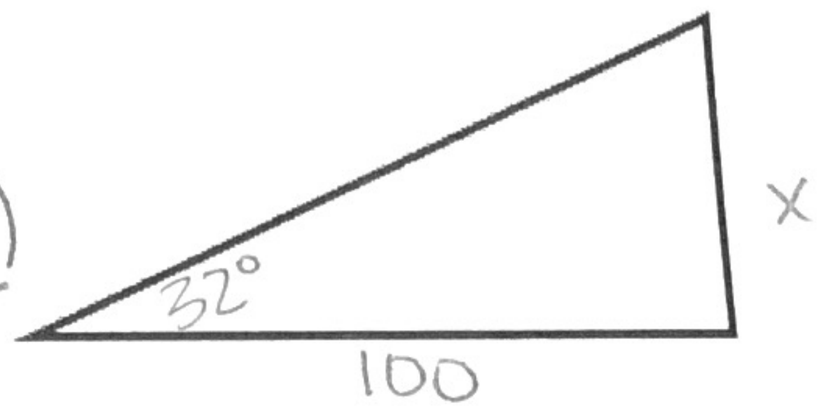
(X) $\tan 36 = \frac{x}{138}$

$x = 100.26ft$

(Y) $\cos 36 = \frac{138}{y}$

$y = 170.58ft$

8. You measure the angle of elevation from the ground to the top of the building as 32 degrees. If you are standing 100 feet from the base of the building, how tall is the building?



$\tan 32 = \frac{x}{100}$

$x = 62.49ft$