Name Bence Abel c19314501 Date 30/09/2022

Angle of Elevation & Depression Trig Worksheet

***Draw and label a picture for each problem**

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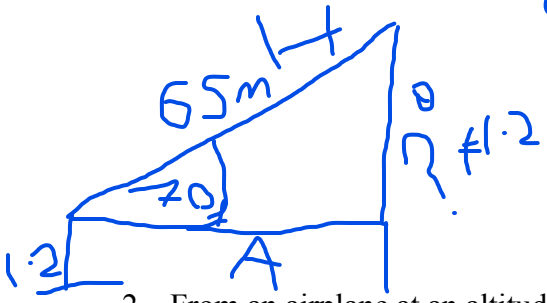
1. Brian's kite is flying above a field at the end of 65 m of string. If the angle of elevation to the kite measures 70°, and Brian is holding the kite 1.2 m off the ground. How high above the ground is the kite flying?

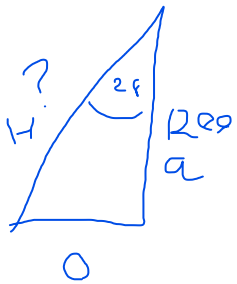


$\sin = \frac{o}{H} \rightarrow \sin 70 = \frac{o}{65}$

$o = 65 \sin 70$

$? = .94(65) = 61.1 + 1.2 = 62.3m$

2. From an airplane at an altitude (height) of 1200 m, the angle of depression to a rock on the ground measures 28°. Find the distance from the plane to the rock.



$\cos = \frac{a}{H}$

$H = \frac{a}{\cos}$

$H = \frac{1200}{\cos 28}$

$H = \frac{1200}{0.883}$

$H = 1359\,m$

3. From a point on the ground 12 ft from the base of a flagpole, the angle of elevation of the top of the pole measures 53°. How tall is the flagpole?

12 ft = 3.6576m

$\tan = \frac{o}{a}$

3.6575Tan(53) = o

3.6576(1.327) = 0

flagpole = 4.85 m or 15.91 ft

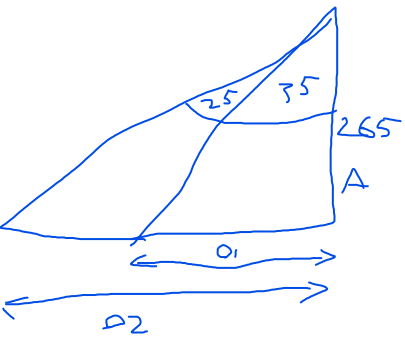
4. From a plane flying due east at 265 m above sea level, the angles of depression of two ships sailing due east measure 35° and 25 °. How far apart are the ships?

o2-o1=d

o = 265tan()

o1 = 265tan(35)
o1 = 265*0.7
o1 = 185.55

o2 = 265tan(60)
o2 = 265*1.732
o2 = 459



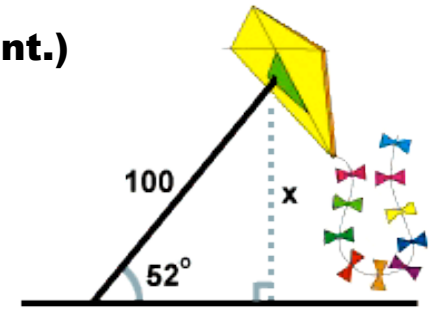
d = 459-185.55 = 273.44 m

Name_____Date_____

Angle of Elevation & Depression Worksheet (Cont.)

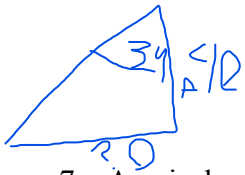
Find all values to the nearest tenth.

5. A man flies a kite with a 100 foot string. The angle of elevation of the string is 52°. How high off the ground is the kite?



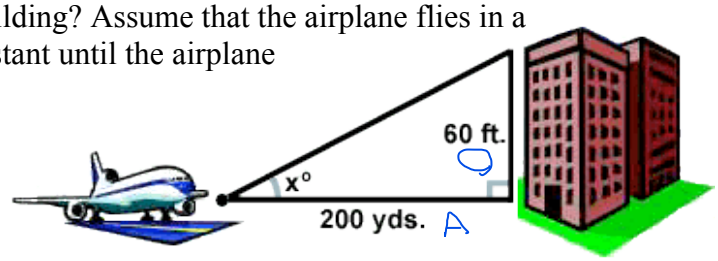
s x h = o
100Sin(52) = o
100(0.788) = o
o = 78.80 ft

6. From the top of a vertical cliff 40 m high, the angle of depression of an object that is level with the base of the cliff is 34º. How far is the object from the base of the cliff?



40tan34 = o
40 * 0.6745 = o
0 = 26.98m

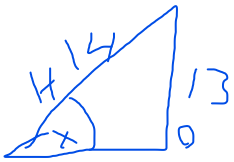
7. An airplane takes off 200 yards in front of a 60 foot building. At what angle of elevation must the plane take off in order to avoid crashing into the building? Assume that the airplane flies in a straight line and the angle of elevation remains constant until the airplane flies over the building.



arc tan 0.1 = 5.7 degrees

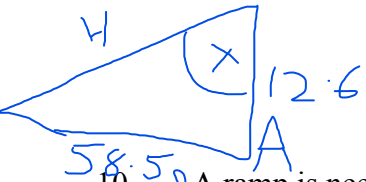
200yards = 600 ft

8. A 14 foot ladder is used to scale a 13 foot wall. At what angle of elevation must the ladder be situated in order to reach the top of the wall?



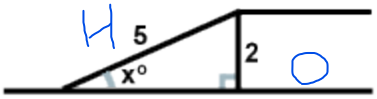
sin(x) = 13/14
x = arcsin(13/14)
x = 68.2 degrees

9. A person stands at the window of a building so that his eyes are 12.6 m above the level ground. An object is on the ground 58.5 m away from the building on a line directly beneath the person. Compute the angle of depression of the person's line of sight to the object on the ground.



x = arc tan (4.643) = 77.8 degrees

10. A ramp is needed to allow vehicles to climb a 2 foot wall. The angle of elevation in order for the vehicles to safely go up must be 30° or less, and the longest ramp available is 5 feet long. Can this ramp be used safely?



sin x = 2/5
x = arc sin (2/5)
x = 23.6 degrees
yes it can be used safely