
1.(1 pt) The angle of elevation to the top of a building is found to be 11° from the ground at a distance of 5000 feet from the base of the building. Find the height of the building.

2.(1 pt)
 A plane is flying at an elevation of 26000 feet.
 It is within sight of the airport and the pilot finds that the angle of depression to the airport is 17° .
 Find the distance between the plane and the airport. _____
 Find the distance between a point on the ground directly below the plane and the airport. _____

3.(1 pt)
 The captain of a ship at sea sights a lighthouse which is 140 feet tall.
 The captain measures the angle of elevation to the top of the lighthouse to be 17° .
 How far is the ship from the base of the lighthouse? _____

4.(1 pt) A hot-air balloon is floating above a straight road. To calculate their height above the ground, the balloonists simultaneously measure the angle of depression to two consecutive mileposts on the road on the same side of the balloon. The angles of depression are found to be 19° and 23° .
 How high (in feet) is the balloon? _____

5.(1 pt)
 A hot-air balloon is floating above a straight road.
 To calculate their height above the ground, the balloonists simultaneously measure the angle of depression to two consecutive mileposts on the road on the same side of the balloon.
 The angles of depression are found to be 25° and 29° .
 How high (in feet) is the balloon? _____
 [NOTE: 1 mile = 5280 feet]

6.(1 pt) A survey team is trying to estimate the height of a mountain above a level plain. From one point on the plain, they

observe that the angle of elevation to the top of the mountain is 30° . From a point 2000 feet closer to the mountain along the plain, they find that the angle of elevation is 34° .
 How high (in feet) is the mountain?

7.(1 pt) A survey team is trying to estimate the height of a mountain above a level plain. From one point on the plain, they observe that the angle of elevation to the top of the mountain is 31° . From a point 1500 feet closer to the mountain along the plain, they find that the angle of elevation is 35° .
 How high (in feet) is the mountain?

8.(1 pt)
 A 34 -ft ladder leans against a building so the angle between the ground and the ladder is 77° .
 How high does the ladder reach on the building? _____

9.(1 pt) A circular arc of length 19 feet subtends a central angle of 85 degrees. Find the radius of the circle in feet. (Note: You can enter π as 'pi' in your answer.) _____ feet

10.(1 pt)
 Find the equation of the tangent line to the curve $y = 6 \sin x$ at the point $(\pi/6, 3)$.
 The equation of this tangent line can be written in the form $y = mx + b$ where
 $m =$ _____
 and $b =$ _____

11.(1 pt)
 Find the equation of the tangent line to the curve $y = 4x \cos x$ at the point $(\pi, -4\pi)$.
 The equation of this tangent line can be written in the form $y = mx + b$ where
 $m =$ _____
 and $b =$ _____