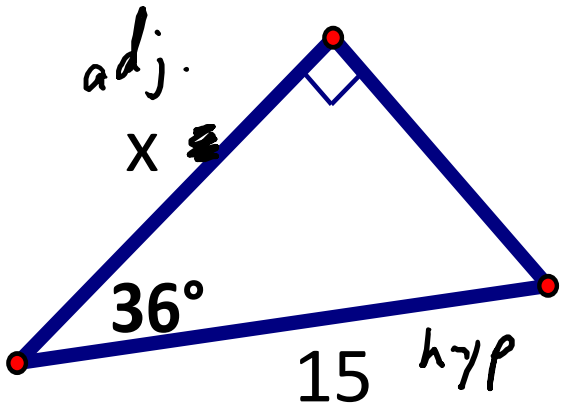
Warm-up Problems

1. Find x.

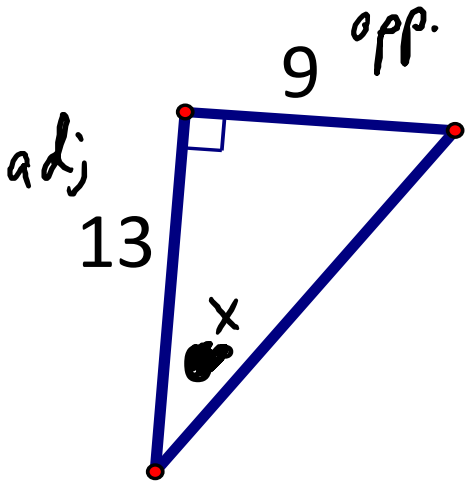


$15 \cos 36 = \frac{x}{15} \cdot 15$

$15 \cos 36 = x$

$x = 12.1$

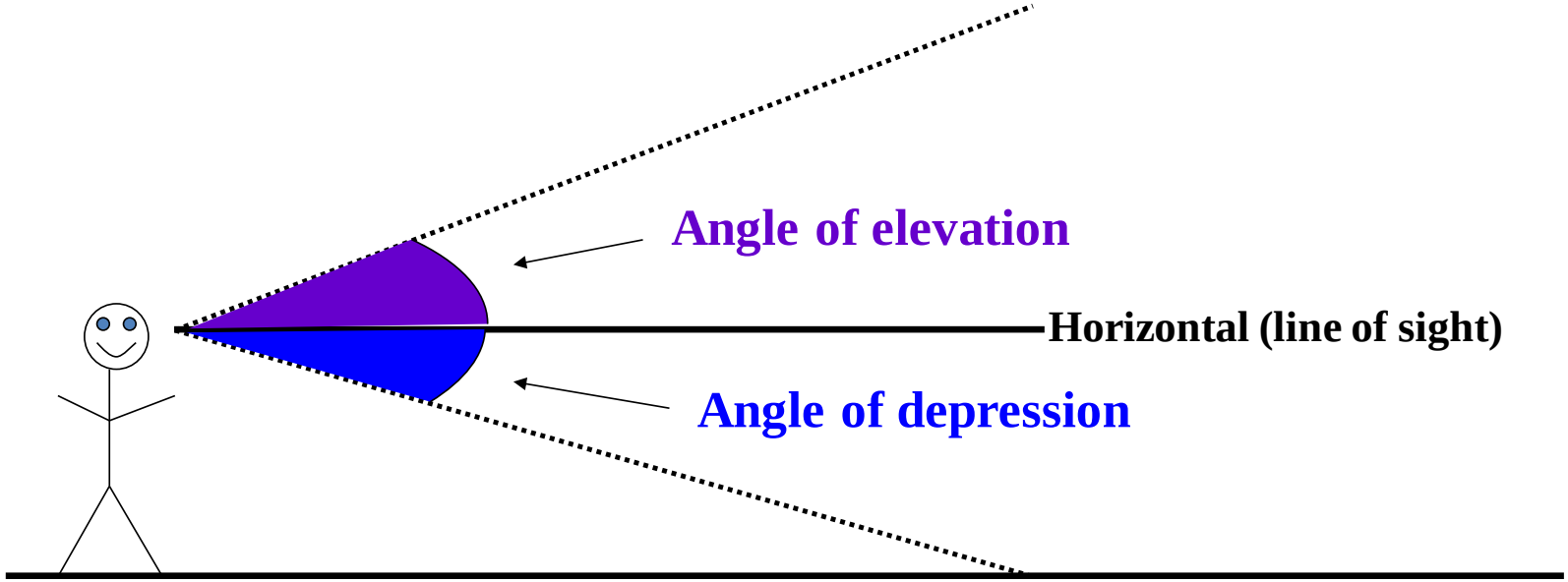
2. Find the angle.

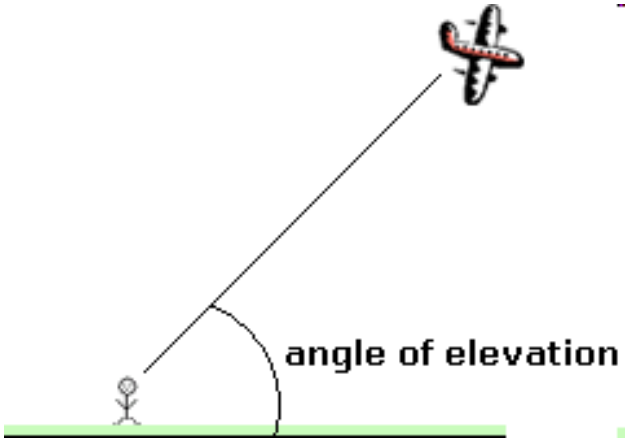


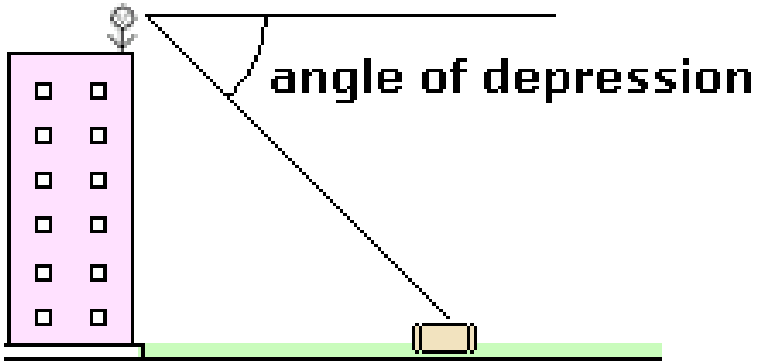
$\tan x = \frac{9}{13}$

$x = 34.7$

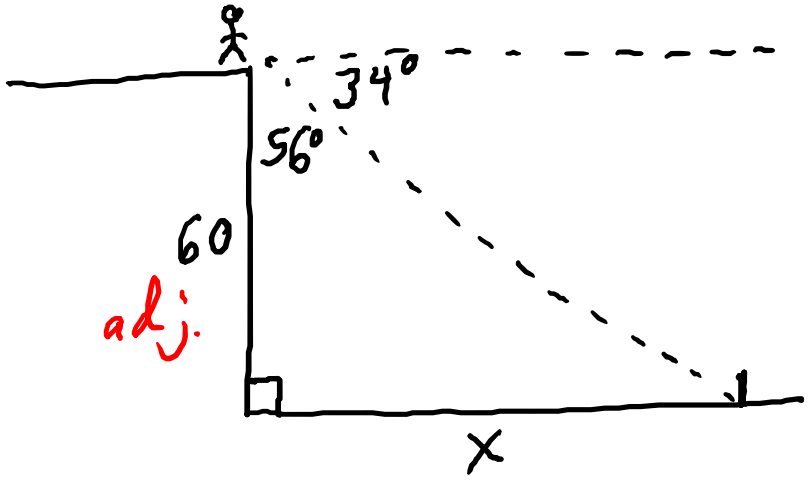
Using Trigonometry


Angle of elevation
Horizontal (line of sight)
Angle of depression


angle of elevation


angle of depression

Ex. From the top of a vertical cliff, the angle of depression to a stake in the ground near the base of the cliff is 34°. If the cliff is 60 ft high, find the distance from the base of the cliff to the stake.



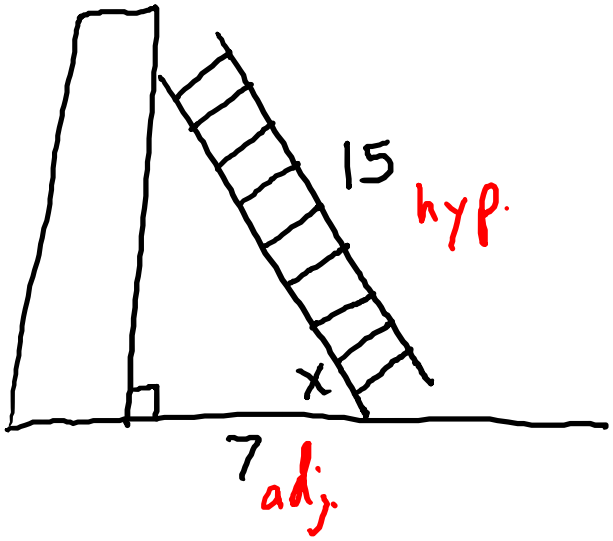
$60 \cdot \tan 56 = \frac{x}{60} \cdot 60$

$60 \tan 56 = x$

$x = 89.0$

$90 - 34 = 56$

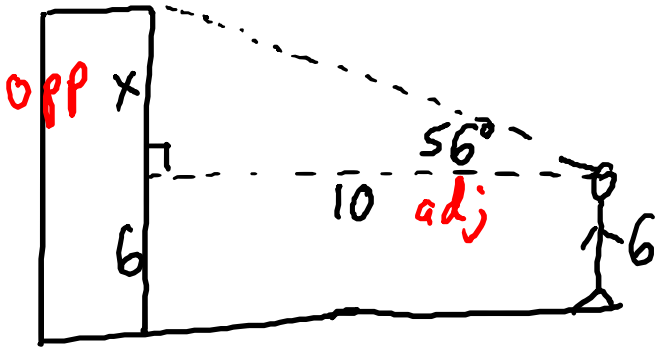
Ex: A 15 foot ladder is leaning against a building. The base of the ladder is 7 feet from the building. What is the angle that the ladder creates with the ground?



$\cos x = \frac{7}{15}$

$x = 62.2$

Ex. A 6 ft tall man standing 10 feet from a building looks at the top of the building so that the angle of elevation is 56°. Find the height of the building.



$10 \cdot \tan 56 = \frac{x}{10} \cdot 10$

$10 \tan 56 = x$

$x = 14.8$

height $= 14.8 + 6 = 20.8$