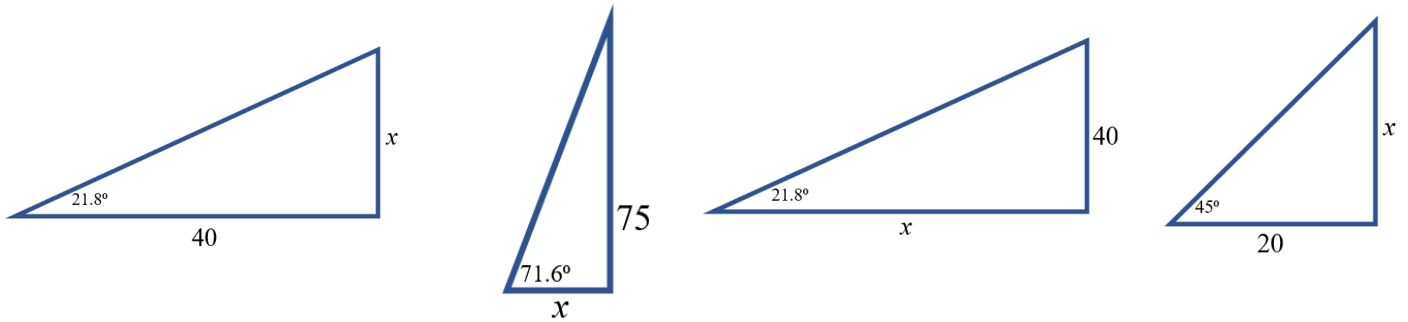
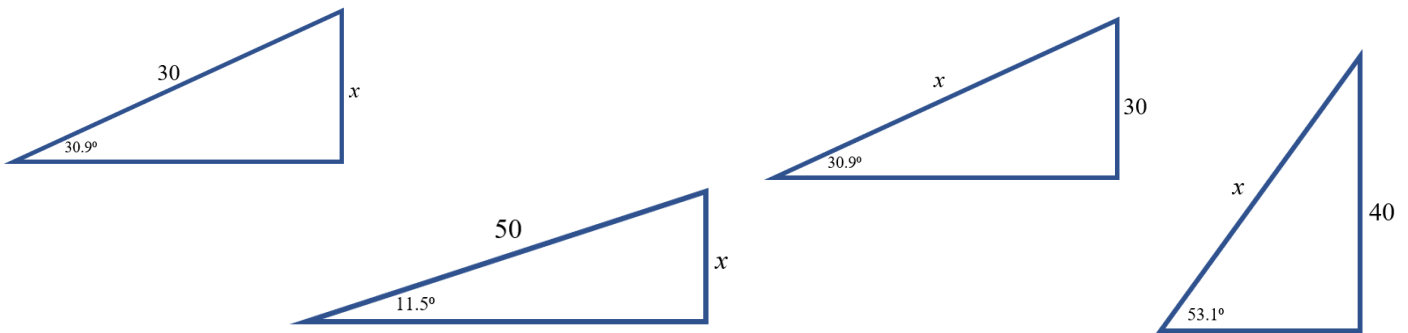


Trigonometry Review

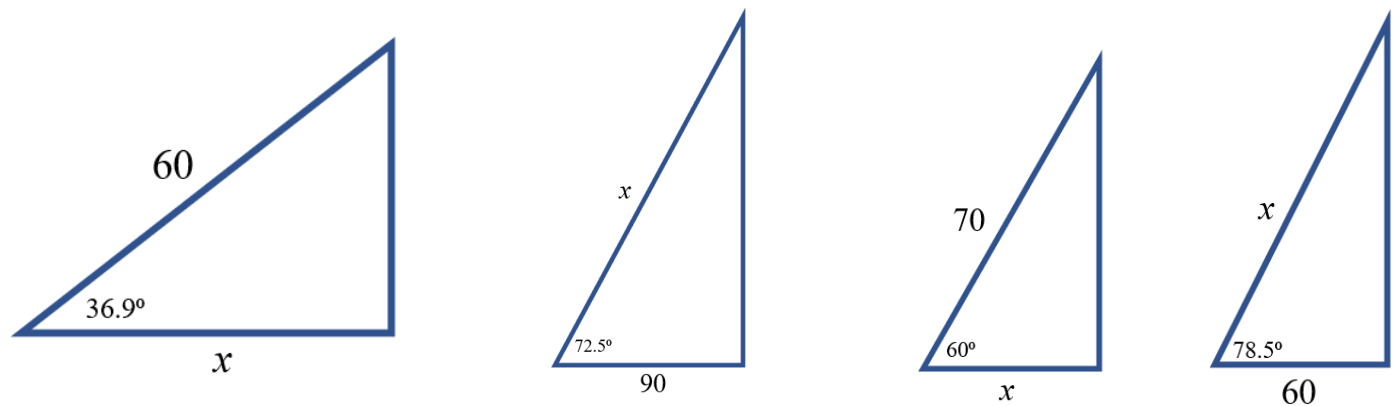
The Tangent Ratio: A triangle represented by a tangent ratio of $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$ is shown.



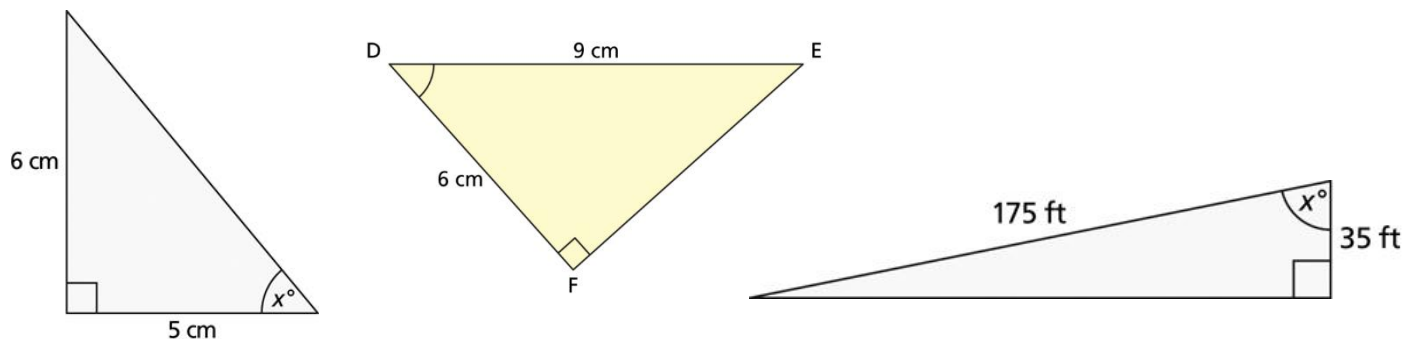
The Sine Ratio: A triangle represented by a sine ratio of $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$ is shown below.



The Cosine Ratio: A triangle represented by a cosine ratio of $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$ is shown below.



Determine the measure of the marked angle.



1. Natalie is rock climbing and Aaron is belaying. When Aaron pulls the rope taut to the ground, the angle of depression is 73° . If Aaron is standing 8 ft from the wall, what length of rope is off the ground?
2. A fire truck has an aerial ladder that extends 30.5 m measured from the ground. The angle of inclination of the ladder is 77° . How far up the wall of an apartment building can the ladder reach?
3. What is the angle of depression of the person's line of sight 150 m vertically and 285 m to the object horizontally?
4. A surveyor wants to determine the width of a gorge without crossing it. From point D, the surveyor walks 25.23 m along the edge of the gorge to point E. From E, the angle between ED and the line of sight to point C on the opposite side is 58.5° . The line CD is perpendicular to DE. Calculate the width of the gorge, CD, to the nearest tenth of a metre.
5. A kite has a string 150-m long. If the string makes an angle of 41° with the ground, find the height of the kite above the ground.
6. From the top of a 350 m tall building the angle of elevation to the top of another building is 52° . The angle of depression to the bottom of the second building is 60° . How tall is the second building?
7. A surveyor is standing some distance from a flagpole. The surveyor measures an angle of elevation of 31° to the top of the pole and an angle of depression of 40° to the base of the pole. The horizontal distance from the surveyor to the flagpole is 28.0 m. Calculate the total height of the flagpole to the nearest tenth of a metre.
8. A person is standing 275 feet from the base of a building. The angle of elevation to the base of the tower's antennae is 32° . The angle of elevation to the top of the antenna is 42° . How tall is the antenna?
9. Two people are at points A and B on a straight road. They are approaching a 20 m tall fire tower (T). The angles of elevation to the top of the tower from the two people are 40° and 60° . How far apart are the people?
10. A roller coaster at an amusement park heads upwards at an angle of 40 degrees for 50 meters along the slope, then drops right back to ground level over a horizontal distance of 30 meters. What is the angle of descent, indicated by x ?