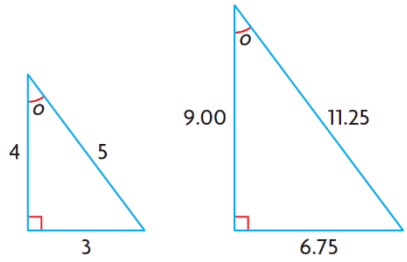
MPM 2D1

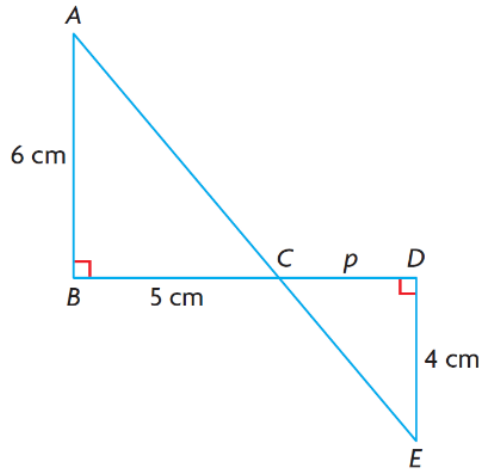
Name: _____

Trigonometry Review

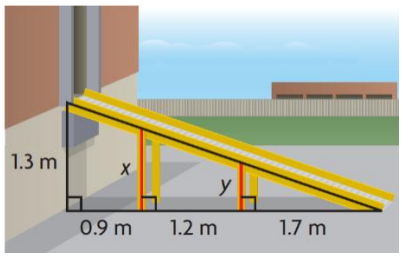
1. Determine whether these triangles are similar. If they are similar, write a proportion statement and determine the scale factor.



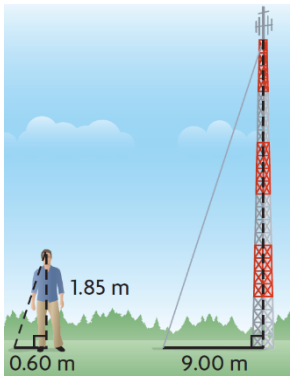
2. State whether the triangles in the diagram are similar. Then determine p.



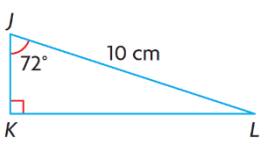
3. Calculate the heights of the two ramp supports, x and y. Round your answers to the nearest tenth of a metre.



4. Brett needs to support a radio tower with guy wires. Each guy wire must run from the top of the tower to its own anchor 9 m from the base of the tower. When the tower casts a shadow that is 9 m long, Brett's shadow is 0.60 m long. Brett is 1.85 m tall. What is the length of each guy wire that Brett needs?

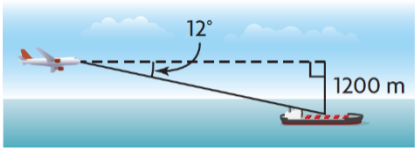


5. Solve this triangle by finding all the missing values.



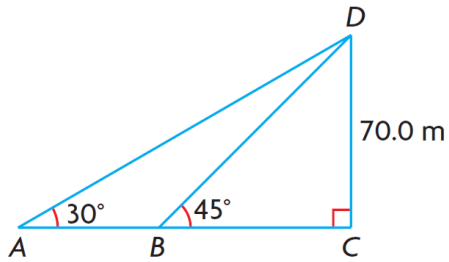
6. Ayesha is a forester. She uses a clinometer (a device used to measure angles of elevation) to sight the top of a tree. She measures an angle of 48°. She is standing 7.2 m from the tree, and her eyes are 1.6 m above ground. How tall is the tree?

7. A search-and-rescue airplane is flying at an altitude of 1200 m toward a disabled ship. The pilot notes that the angle of depression to the ship is 12°. How much farther does the airplane have to fly to end up directly above the ship?



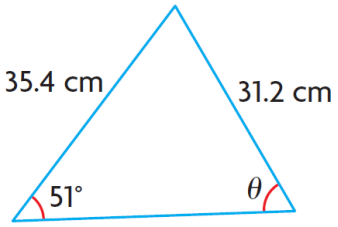
8. Two watch towers at an historic fort are located 375 m apart. The first tower is 14 m tall, and the second tower is 30 m tall.
   a) What is the angle of depression from the top of the second tower to the top of the first tower?
   b) The guards in the towers simultaneously spot a suspicious car parked between the towers. The angle of depression from the lower tower to the car is 7.7°. The angle of depression from the higher tower is 6.3°. Which guard is closer to the car?

9. A swimmer observes that from point *A*, the angle of elevation to the top of a cliff at point *D* is 30°. When the swimmer swims toward the cliff for 1.5 min to point *B*, he estimates that the angle of elevation to the top of the cliff is about 45°. If the height of the cliff is 70 m, calculate the distance the swimmer swam.

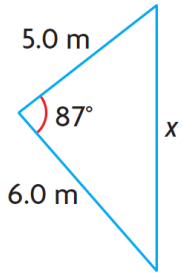


10. Calculate the indicated side length or angle measure in each triangle.

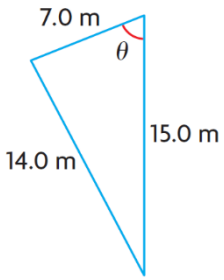
a)



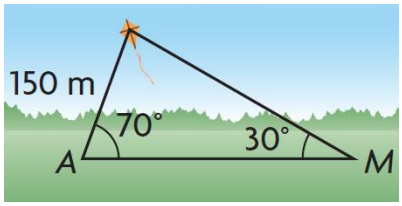
b)



c)



11. Allison is flying a kite. She has released the entire 150 m ball of kite string. She notices that the string forms a 70° angle with the ground. Marc is on the other side of the kite and sights the kite at an angle of elevation of 30°. How far is Marc from Allison?



12. Two airplanes leave an airport at the same time. One airplane travels at 355 km/h. The other airplane travels at 450 km/h. About 2 h later, they are 800 km apart. Determine the angle between their paths.