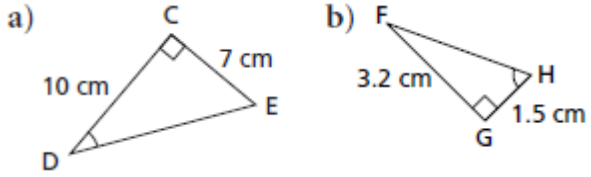
Math 10

Lesson 7-6 Love those trigonometry problems

I. Assignment

1. Determine each indicated angle to the nearest degree.



   b) Determine the length of the hypotenuse of each triangle in part a.

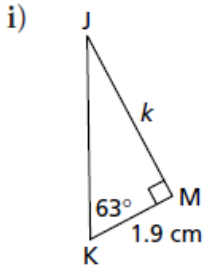
2.
   a) Is tan 20° greater than or less than 1?
   b) Is tan 70° greater than or less than 1?
   c) How could you answer parts a and b if you did not have a calculator? Sketch a right triangle to illustrate your answer.

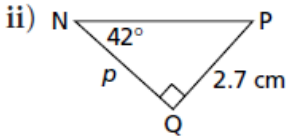
3. A road rises 15 m for each 150 m of horizontal distance. What is the angle of inclination of the road to the nearest degree?

4. Sketch a triangle to show that tan 45° = 1. Describe the triangle.

5.
a) Determine the length of each indicated side to the nearest tenth of a centimetre.

b) Determine the length of the hypotenuse of each triangle in part a.

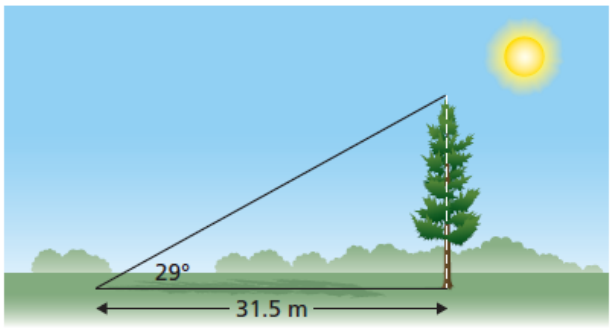




6. At a point 100 m from the base of the Eiffel tower, the angle of elevation of the top of the tower is 73°. How tall is the tower to the nearest metre?

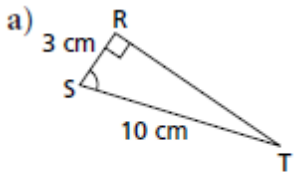
7. The shorter side of a rectangle is 5.7 cm. The angle between this side and a diagonal is 64°. Determine the lengths of the rectangle and the diagonal. State the answers to the nearest tenth of a centimetre.

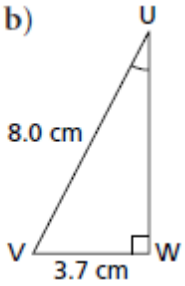
8. A tree casts a shadow that is 31.5 m long when the angle between the sun's rays and the ground is 29°. What is the height of the tree to the nearest tenth of a metre?



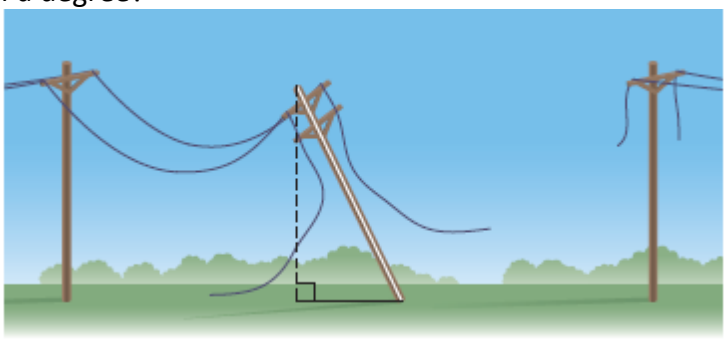
9. Aidan knows that the observation deck on the Vancouver Lookout is 130 m above the ground. He measures the angle between the ground and his line of sight to the observation deck as 77°. How far is Aidan from the base of the Lookout to the nearest metre?

10. Determine the measure of each indicated angle to the nearest degree.

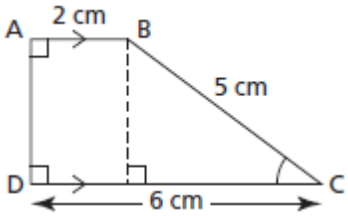




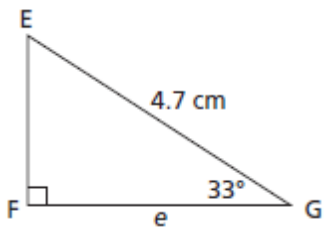
11. During a storm, a 10.0-m telephone pole was blown off its vertical position. The top of the pole was then 9 m above the ground. What was the angle of inclination of the pole to the nearest tenth of a degree?

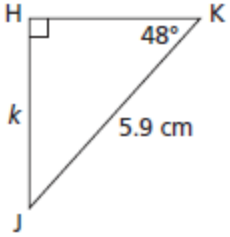


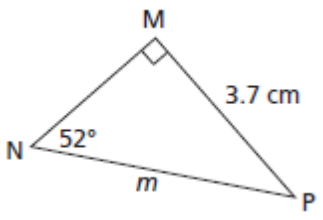
12. Determine the measure of ∠C in this trapezoid. Give your answer to the nearest tenth of a degree.



13. Determine the length of each indicated side to the nearest tenth of a centimetre.

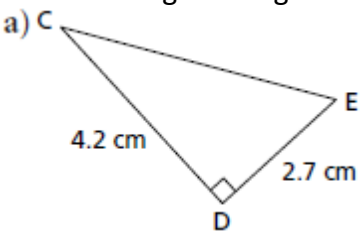
a) 

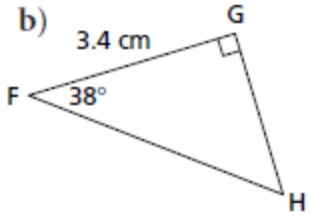
b) 

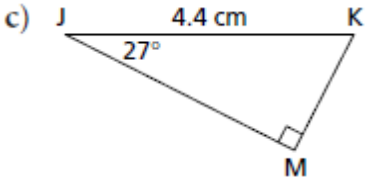
c) 

14. A ship is sailing off the west shore of Hudson Bay. At a certain point, the ship is 4.5 km due east of the town of Arviat. The ship then sails due north until the angle between the path of the ship and the line of sight to Arviat is 48.5°. How far is the ship from Arviat? State the answer to the nearest tenth of a kilometre.

15. Solve each right triangle. State the measures to the nearest tenth.

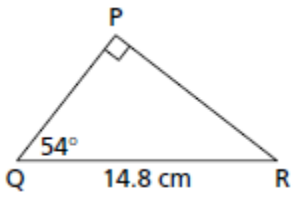
a) 

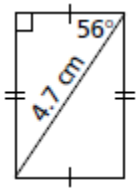
b) 

c) 

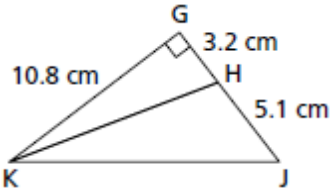
16. In Italy, the Leaning Tower of Pisa currently leans 13 ft. off the vertical. The tower is 183 ft. tall. What is its angle of inclination to the nearest tenth of a degree?

17. Determine the perimeter and area of each shape. Give the measures to the nearest tenth.

a) 

b) 

18. In the diagram , determine each measure.
a) KJ b) HK c) ∠HKJ
Give the measures to the nearest tenth.



19. A fire ranger is at the top of a 90-ft. observation tower. She observes smoke due east at an angle of depression of 5° and due west at an angle of depression of 4°. How far apart are the fires to the nearest foot? The diagram is *not* drawn to scale.