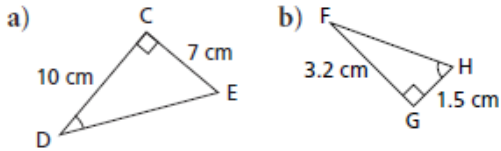


## GMF 10 – Review of Trig

### 2.1

1. Determine each indicated angle to the nearest degree.

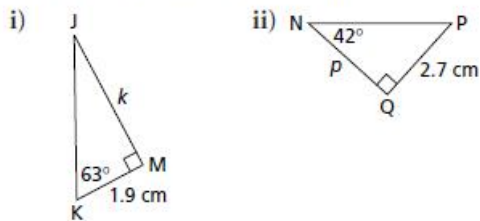


2. a) Is  $\tan 20^\circ$  greater than or less than 1?  
 b) Is  $\tan 70^\circ$  greater than or less than 1?  
 c) How could you answer parts a and b if you did not have a calculator? Sketch a right triangle to illustrate your answer.
3. A road rises 15 m for each 150 m of horizontal distance. What is the angle of inclination of the road to the nearest degree?
4. Sketch a triangle to show that  $\tan 45^\circ = 1$ . Describe the triangle.

Answers are on page 107.

### 2.2

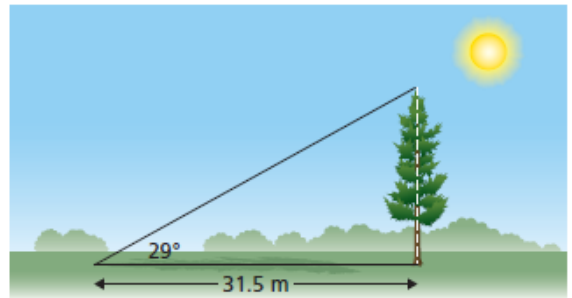
5. a) Determine the length of each indicated side to the nearest tenth of a centimetre.



- b) Use the Pythagorean Theorem to determine the length of the hypotenuse of each triangle in part a. What other strategy could you have used to determine each length?
6. At a point 100 m from the base of the Eiffel tower, the angle of elevation of the top of the tower is  $73^\circ$ . 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  $64^\circ$ .
- a) Determine the length of the rectangle.  
 b) Determine the length of a 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  $29^\circ$ . What is the height of the tree to the nearest tenth of a metre?



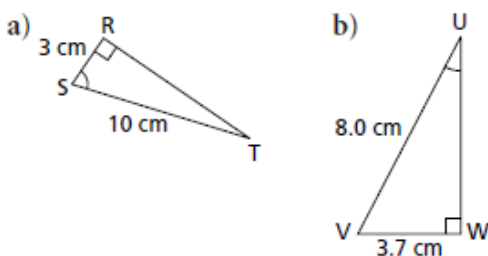
9. Aidan knows that the observation deck on the Vancouver Lookout is 130 m above the ground. He measures the angle between the ground and his line of sight to the observation deck as  $77^\circ$ . How far is Aidan from the base of the Lookout to the nearest metre?



### 2.3

10. Use your drinking-straw clinometer to

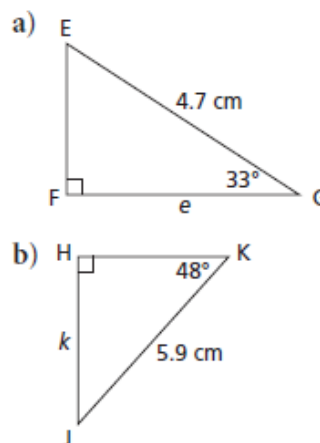
11. Determine the measure of each indicated angle to the nearest degree. Which trigonometric ratio did you use each time? Explain why.



12. Sketch and label right  $\triangle BCD$  with  $BC = 5$  cm,  $CD = 12$  cm, and  $BD = 13$  cm.

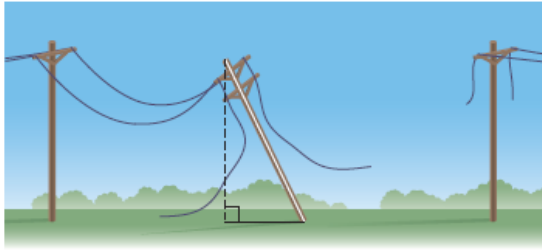
- a) What is the value of each ratio?
- i)  $\sin D$                       ii)  $\sin B$   
 iii)  $\cos B$                      iv)  $\cos D$

15. Determine the length of each indicated side to the nearest tenth of a centimetre. Which trigonometric ratio did you use each time? Explain why.

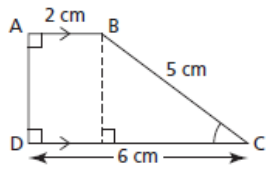


- b) How are the ratios in part a related? Explain why this relationship occurs.

13. 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?

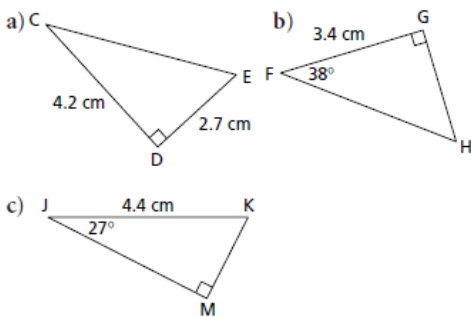


14. Determine the measure of  $\angle C$  in this trapezoid. Give your answer to the nearest tenth of a degree. Describe your strategy.



## 2.6

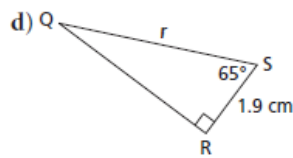
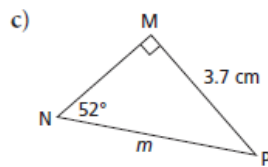
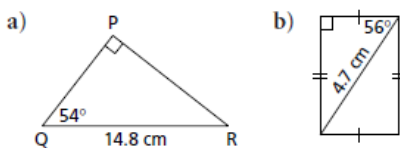
18. Solve each right triangle. State the measures to the nearest tenth.



19. 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?

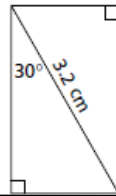


20. Determine the perimeter and area of each shape. Give the measures to the nearest tenth.

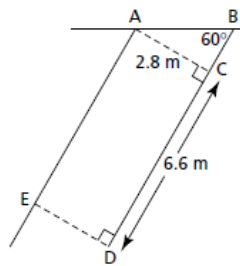


16. A ship is sailing off the west shore of Hudson Bay. At a certain point, the ship is 4.5 km due east of the town of Arviat. The ship then sails due north until the angle between the path of the ship and the line of sight to Arviat is  $48.5^\circ$ . How far is the ship from Arviat? State the answer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

17. Determine the dimensions of this rectangle to the nearest tenth of a centimetre.



21. Cars are parked at an angle to the street. The diagram shows a parking space.

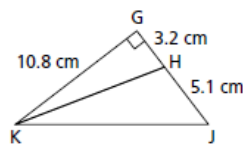


- a) What is the length, AB?  
b) What is the length, BD?  
Give the measures to the nearest tenth of a metre.

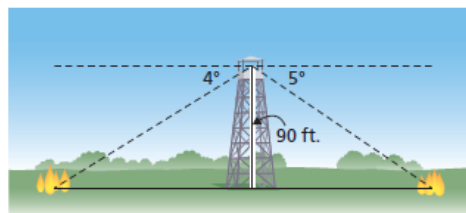
## 2.7

22. In the diagram below, determine each measure.

- a)  $\angle KJ$     b)  $\angle HK$     c)  $\angle HKJ$   
Give the measures to the nearest tenth.



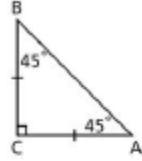
23. A fire ranger is at the top of a 90-ft. observation tower. She observes smoke due east at an angle of depression of  $5^\circ$  and due west at an angle of depression of  $4^\circ$ . How far apart are the fires to the nearest foot? The diagram is *not* drawn to scale.



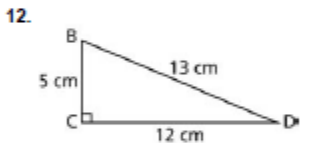
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1. a)  $35^\circ$     b)  $65^\circ$   
2. a)  $\tan 20^\circ < 1$     b)  $\tan 70^\circ > 1$   
3.  $6^\circ$

4. The triangle is an isosceles right triangle.



5. a) i) 3.7 cm  
ii) 3.0 cm  
b) Could also use trigonometric ratios  
i) Approximately 4.2 cm  
ii) Approximately 4.0 cm  
6. 327 m  
7. a) 11.7 cm    b) 13.0 cm  
8. 17.5 m  
9. 30 m  
11. a)  $73^\circ$ ; cosine    b)  $28^\circ$ ; sine



12. a) i)  $\frac{5}{13}$     ii)  $\frac{12}{13}$   
iii)  $\frac{5}{13}$     iv)  $\frac{12}{13}$   
b)  $\sin D = \cos B$ ;  $\sin B = \cos D$

13.  $64.2^\circ$   
14.  $36.9^\circ$   
15. a) 3.9 cm; cosine  
b) 4.4 cm; sine  
c) 4.7 cm; sine  
d) 4.5 cm; cosine  
16. 6.0 km  
17. 1.6 cm by 2.8 cm  
18. a)  $CE = 5.0$  cm,  $\angle E = 57.3^\circ$ ,  $\angle C = 32.7^\circ$   
b)  $\angle H = 52^\circ$ ,  $GH = 2.7$  cm,  $FH = 4.3$  cm  
c)  $\angle K = 63^\circ$ ,  $JM = 3.9$  cm,  $KM = 2.0$  cm  
19.  $85.9^\circ$   
20. a) 35.5 cm;  $52.1$  cm<sup>2</sup>  
b) 13.0 cm;  $10.2$  cm<sup>2</sup>

21. a) 3.2 m    b) 8.2 m  
22. a) 13.6 cm    b) 11.3 cm  
c)  $21.0^\circ$   
23. 2316 ft.