Name: _____ Date: _____

BLM 1–5

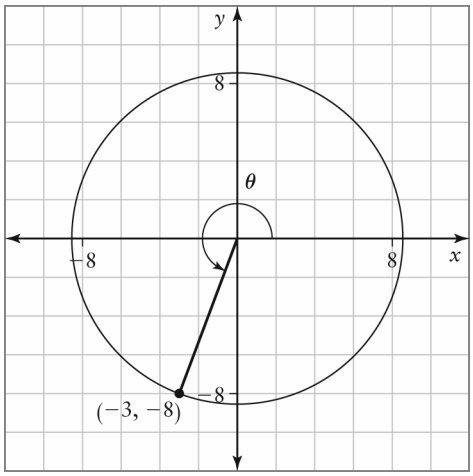
Chapter 1 Practice Test

Express angle measures to the nearest degree and lengths to the nearest tenth of a unit.

1. **a)** Draw a 210° angle in standard position on a unit circle.
b) State two other angles between 0° and 360° that have the same reference angle as 210°.
c) Determine exact values for the primary trigonometric ratios of 210°.

2. The 4-m ramp on the back of a moving van makes an angle of 30° with the ground. How far is the base of the ramp from the van? Express your answer as an exact value.

3. The coordinates of a point on the terminal arm of an angle θ in standard position are shown.



a) Determine the exact values of the primary trigonometric ratios for θ.
b) Determine the measure of angle θ.

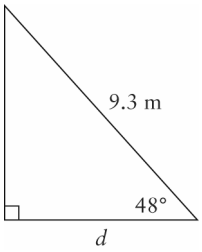
4. Two angles between 0° and 360° have a tangent ratio of –1. Without using a calculator, determine the angles.

5. **a)** Evaluate sin 142° to four decimal places.
b) State another angle with the same sine ratio.

6. If $\cos\theta = \frac{1}{4}$, find two possible exact values for $\tan\theta$, for $0° \le \theta \le 360°$.

7. **a)** Solve $2x^2 + x - 1 = 0$.
b) Explain how the equation in part a) is related to the equation $2\cos^2\theta + \cos\theta - 1 = 0$.
c) Solve $2\cos^2\theta + \cos\theta - 1 = 0$ for $0° \le \theta \le 360°$.

8. Determine d.
a)



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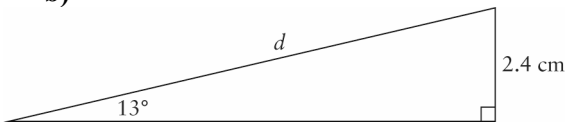

9. A helicopter pilot, flying 200 ft above the water, spots a stranded swimmer in the ocean below. If the angle of depression of the pilot's line of sight is 40°, how far is the swimmer from the pilot?

10. To determine the height of a flagpole, Mariam stood 3 m from its base and measured the angle of inclination to be 62°. If Mariam is 1.6 m tall, what is the height of the flagpole?

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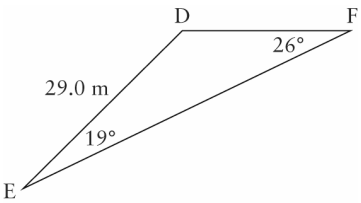
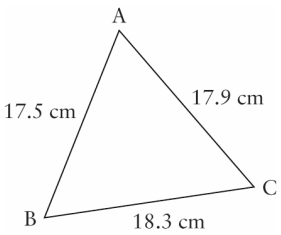
Name: _____ Date: _____

11. Solve each triangle.

a)



b)

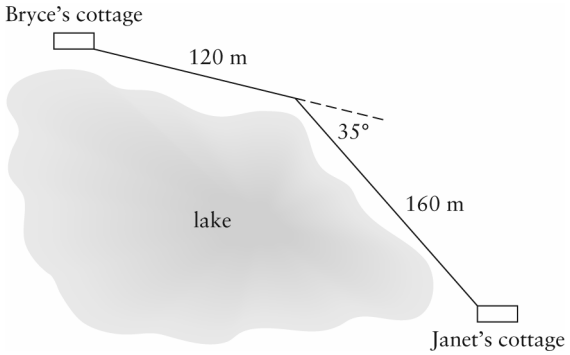


12. Determine the number of solutions. Then, determine the length of the third side.

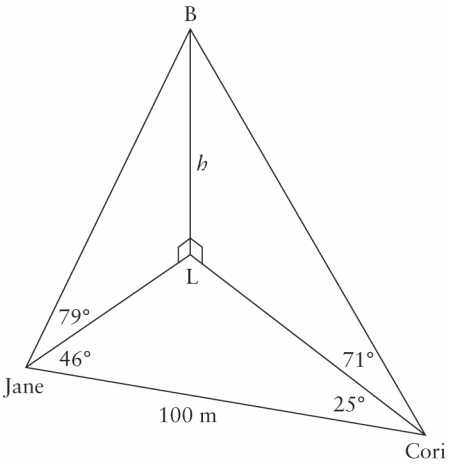
a) In $\triangle PQR$, $\angle P = 49°$, $p = 12.2$ cm, and $q = 18$ cm.

b) In $\triangle KLM$, $\angle K = 34°$, $k = 8.5$ m, and $l = 13.4$ m.

13. Bryce and Janet have waterfront cottages on the same lake. To reach Janet's cottage, Bryce walks 120 m along a straight path, then turns 35° and walks another 160 m. What is the distance between the two cottages?



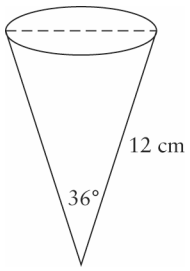
14. Jane and Cori each tracked a hot-air balloon as it rose vertically from launch site L.



a) Determine the height of the balloon according to each woman.

b) According to a device installed on the hot-air balloon, its height was 225 m. Compare this to the heights calculated using each woman's data. Who was closer?

15. An ice cream cone has a 36° angle at its vertex and a side length of 12 cm. Determine the diameter at the top of the cone.



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