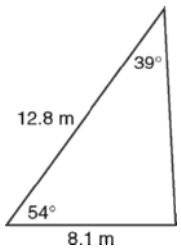
Name _____ Date _____ Class _____

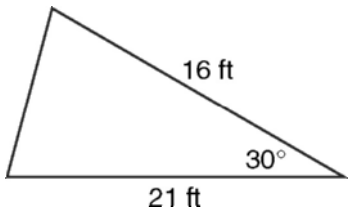
LESSON 13-5

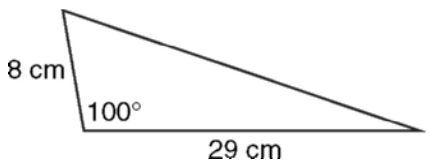
Practice B

The Law of Sines

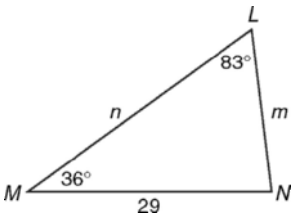
Find the area of each triangle. Round to the nearest tenth.

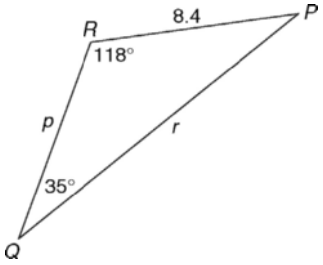
1. 

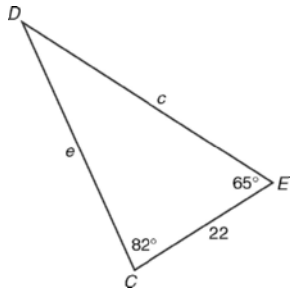
2. 

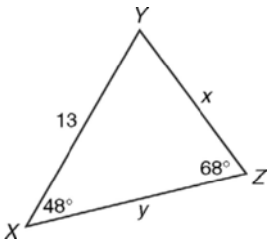
3. 

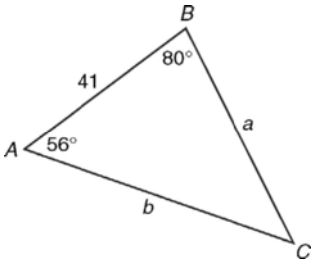
Solve each triangle. Round to the nearest tenth.

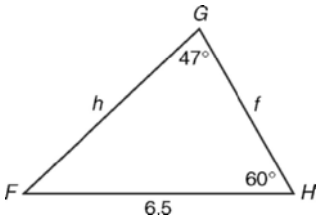
4. 

5. 

6. 

7. 

8. 

9. 

An artist is designing triangular mosaic tiles. Determine the number of triangles he can form from the given side and angle measures. Then solve the triangles. Round to the nearest tenth.

10. $a = 8$ cm, $b = 10$ cm, $A = 60°$

11. $a = 18$ cm, $b = 15$ cm, $A = 85°$

12. $a = 22$ cm, $b = 15$ cm, $A = 120°$

Solve.

13. Ann is creating a triangular frame. Two angles and the included side of the frame measure 64°, 58°, and 38 centimeters, respectively. What are the lengths of the other two sides of the frame to the nearest tenth of a centimeter?

when the value of the trigonometric function is known.

2. $\frac{\pi}{3}, \frac{2\pi}{3}$
3. $\frac{\pi}{4}, \frac{3\pi}{4}$
4. $\frac{\pi}{6}, \frac{11\pi}{6}$
5. a. $\frac{\pi}{4}, \frac{7\pi}{4}$

   b. $\frac{\pi}{4} + (2\pi)n, \frac{7\pi}{4} + (2\pi)n$

6. a. 0, π

   b. $(2\pi)n$, $\pi + (2\pi)n$

   c. $360n$, $90 + 360n$

LESSON 13-5

Practice A

1. a. $A = \frac{1}{2}(9)(14)\sin 85$

   b. 62.8 cm^2
2. 60.1 km^2
3. 126.7 m^2
4. 53.5 m^2
5. a. $R = 15°$

   b. $t \approx 82$; $s \approx 104.4$
6. $m\angle J = 120°$;

   $k \approx 34.7$;

   $l \approx 36.9$
7. $m\angle V = 53°$;

   $v \approx 14.4$;

   $u \approx 14.9$
8. $m\angle H = 88°$;

   $h \approx 16.6$;

   $g \approx 15.2$
9. 26.6 ft^2

Practice B

1. 41.9 m^2
2. 84 ft^2
3. 114.2 cm^2
4. $m\angle N = 61°$; $n \approx 25.6$; $m \approx 17.2$
5. $m\angle P = 27°$; $r \approx 12.9$; $p \approx 6.6$
6. $m\angle D = 33°$; $e \approx 36.6$; $c \approx 40.0$
7. $m\angle Y = 64°$; $x \approx 10.4$; $y \approx 12.6$
8. $m\angle C = 44°$; $a \approx 48.9$; $b \approx 58.1$
9. $m\angle F = 73°$; $h \approx 7.7$; $f \approx 8.5$
10. 0 triangles
11. 1 triangle; $c \approx 11.3$ cm; $m\angle B = 56°$; $m\angle C = 39°$
12. 1 triangle; $c \approx 10.3$ cm; $m\angle B = 36°$; $m\angle C = 24°$
13. 38.0 cm; 40.3 cm

Practice C

1. 361.6 m^2
2. 81.4 cm^2
3. 750.8 km^2
4. $m\angle R = 45°$; $r \approx 20$; $p \approx 28$
5. $m\angle R = 28°$; $t \approx 15.5$; $r \approx 7.4$
6. $m\angle X = 79.2°$; $m\angle Y = 61.8°$; $x \approx 15.6$
7. 0 triangles
8. 1 triangle; $c \approx 20.1$ cm; $m\angle B = 16.6°$; $m\angle C = 73.4°$
9. 0 triangles
10. 2 triangles; $c \approx 28.4$ cm, $m\angle B = 65.5°$, $m\angle C = 59.5°$; $c \approx 6.0$ cm, $m\angle B = 114.4°$, $m\angle C = 10.5°$
11. 1 triangle; $c \approx 25.4$ cm; $m\angle B = 47.1°$; $m\angle C = 57.9°$
12. 1 triangle; $c \approx 8.0$ cm; $m\angle B = 90°$; $m\angle C = 60°$
13. 1 pen; 19.4 m

Reteach

1. a. 64°; 6; 15; 40.4 m^2
2. a. 76°; 16; 28; 217.3 yd^2
3. 34°; 67°; 12
4. 79°
5. $b \approx 21.1$
6. $c \approx 19.8$

Challenge

1. about 0.70 mile from shore; about 0.97 mile from one point, about 1.86 miles from the second point.
2. In $\triangle ABC$, use $\overline{AC}$, which has length b, as the base. Draw a perpendicular segment from vertex B to line AC. The length h is the height of $\triangle ABC$ and $h = a \sin C$. By