MATH 244/GRACEY
CHAPTER 7.1-7.2 PRACTICE

Name_____

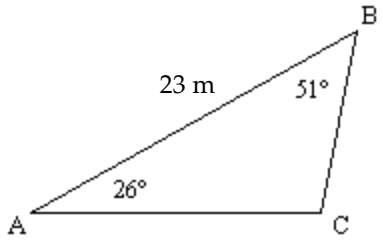
Determine whether there is sufficient information for solving a triangle, with the given combination of angles and sides, by the law of sines.

1) b, C, and B

Solve the triangle, if possible.

2) A = 32°20'
B = 30°10'
a = 46.35

3)



Solve the problem.

4) A guy wire to a tower makes a 67° angle with level ground. At a point 33 ft farther from the tower than the wire but on the same side of the base as the wire, the angle of elevation to the top of the pole is 36°. Find the wire length (to the nearest foot).

5) Points A and B are on opposite sides of a lake. A point C is 84.5 meters from A. The measure of angle BAC is 79°20', and the measure of angle ACB is determined to be 33°10'. Find the distance between points A and B (to the nearest meter).

Find the area of triangle ABC with the given parts.

6) A = 30.0°
b = 13.9 in.
c = 8.7 in.

7) b = 20.7 ft
A = 34°30'
C = 102°50'

Solve the problem.

8) In aerial photography, ground coordinates (X, Y) in feet are given by

$$X = \frac{(a - h)x}{f \sec \theta - y \sin \theta}, \quad Y = \frac{(a - h)y \cos \theta}{f \sec \theta - y \sin \theta},$$

where a is the altitude in feet of the airplane, h is the elevation in feet of the object, f is the length of the camera in inches, θ is the tilt angle of the camera, and (x, y) are the photographic coordinates.
Find the distance in miles between two objects at ground level with photographic coordinates (7.6, 9.6) and (2.5, –2.1) if a = 2500 ft, f = 9 inches, and the photograph is taken vertically (i.e., with no tilt). Round your answer to the nearest hundredth.

9) Find the area of a triangular–shaped field with sides of 174.0 m and 154.9 m, and the included angle between them measuring 60.94°.

Determine the number of triangles ABC possible with the given parts.

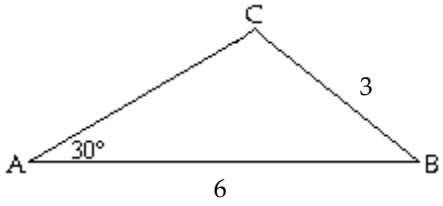
10) a = 30, b = 61, A = 77°

11) a = 35, b = 45, A = 22°

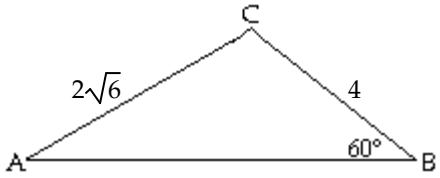
12) a = 24, b = 19, A = 44°

Find the missing parts of the triangle.

13)



14)



15) C = 109°
c = 44 km
a = 54 km

16) A = 65.3°
a = 2.15 km
b = 2.25 km

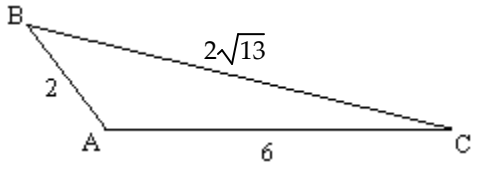
17) A = 10.5°
a = 149 ft
b = 176 ft

Solve the problem.

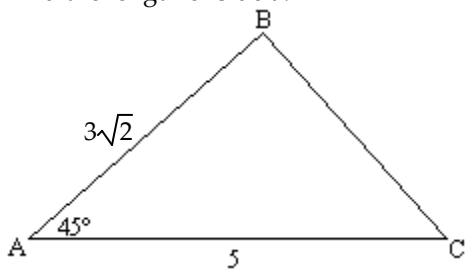
18) To find the distance AB across a river, a distance BC = 811 m is laid off on one side of the river. It is found that B = 102.4° and C = 13.2°. Find AB.

Find the indicated angle or side.

19) Find the measure of angle A.



20) Find the length of side a.



Find the missing parts of the triangle.

21) B = 63°30'
a = 12.20 ft
c = 7.80 ft

22) C = 122.6°
a = 8.00 m
b = 8.16 m

Find the missing parts of the triangle. (Find angles to the nearest hundredth of a degree.)

23) a = 29 ft
b = 38 ft
c = 45 ft

24) a = 6.4 in.
b = 13.0 in.
c = 16.2 in.

Solve the problem.

25) Two points A and B are on opposite sides of a building. A surveyor chooses a third point C 60 yd from B and 94 yd from A, with angle ACB measuring 62.5°. How far apart are A and B (to the nearest yard)?

Find the area of triangle ABC with the given parts.

26) a = 46 ft
b = 59 ft
c = 69 ft

Solve the problem.

27) A painter needs to cover a triangular region 63 meters by 66 meters by 73 meters. A can of paint covers 70 square meters. How many cans will be needed?

Answer Key
Testname: 7.1-7.2PRAC

1) Yes
2) C = 117°30', b = 43.55, c = 76.87
3) C = 103°, a = 10.3 m, b = 18.3 m
4) 38 ft
5) 50 m
6) 30 in.^2
7) 174.6 ft^2
8) 0.67 miles
9) 11,780 m^2
10) 0
11) 2
12) 1
13) B = 60°, C = 90°, b = $3\sqrt{3}$
14) A = 45°, C = 75°, c = $2\sqrt{3} + 2$
15) No solution
16) B = 71.9°, C = 42.8°, c = 1.61 km
    B′ = 108.1°, C′ = 6.6°, c′ = 0.27 km
17) B = 12.4°, C = 157.1°, c = 318 ft
    B′ = 167.6°, C′ = 1.9°, c′ = 27 ft
18) 205 m
19) 120°
20) $\sqrt{13}$
21) b = 11.17 ft, A = 77°49', C = 38°41'
22) c = 14.2 m, A = 28.3°, B = 29.1°
23) A = 39.79°, B = 56.99°, C = 83.22°
24) A = 22.02°, B = 49.60°, C = 108.38°
25) 85 yd
26) 1341 ft^2
27) 28 cans