MATH 104/GRACEY
WORKSHEET/2.3-2.4

Name_____

Use a calculator to find the function value. Give your answer rounded to seven decimal places, if necessary.

1) sin 285°3′

2) tan 78°23′

3) sec 36°48′

Find a value of θ in [0°, 90°] that satisfies the statement. Leave answer in decimal degrees rounded to seven decimal places, if necessary.

4) cos θ = 0.32512855

5) sin θ = 0.69771214

6) cot θ = 1.2670319

7) csc θ = 1.3749283

Use a calculator to find the function value. Give your answer rounded to seven decimal places, if necessary.

8) cos 36° cos 144° – sin 36° sin 144°

9) 2 sin 41° 13' cos 41° 13' – sin 82° 26'

Use a calculator to decide whether the statement is true or false.

10) sin (90° + 150°) = sin 90° + sin 150°

11) cos (2 • 45°) = 2 • cos 45°

Solve the problem.

12) The grade resistance F of a car traveling up or down a hill is modeled by the equation F = W sin θ, where W is the weight of the car and θ is the angle of the hill's grade (θ > 0 for uphill travel, θ < 0 for downhill travel). What is the grade resistance (to the nearest pound) of a 1000–lb car traveling uphill on a 1° grade (θ = 1°)?

13) The grade resistance F of a car traveling up or down a hill is modeled by the equation F = W sin θ, where W is the weight of the car and θ is the angle of the hill's grade (θ > 0 for uphill travel, θ < 0 for downhill travel). What is the grade resistance (to the nearest pound) of a 2500–lb car traveling downhill on a 6° grade (θ = –6°)?

The number represents an approximate measurement. State the range represented by the measurement.

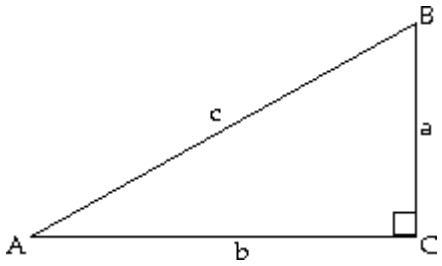
14) 18 ft

15) 4.1 m

16) 73.96 k

Solve the right triangle. If two sides are given, give angles in degrees and minutes.

17)



A = 18° 19′, c = 276 ft
Round side lengths to two decimal places.

Solve the right triangle.

18) a = 3.2 cm, b = 1.5 cm, C = 90°

19) a = 1.5 in., A = 51.3°, C = 90°

20) A = 62° 36′, c = 235 m , C = 90°

21) B = 42.1°, c = 4.2 mm, C = 90°

Solve the problem.

22) On a sunny day, a flag pole and its shadow form the sides of a right triangle. If the hypotenuse is 52 meters long and the shadow is 48 meters, how tall is the flag pole?

23) A tunnel is to be dug from point A to point B. Both A and B are visible from point C. If AC is 150 miles and BC is 326 miles, and if angle C is 90°, find the measure of angle B.

24) From a boat on the lake, the angle of elevation to the top of a cliff is 29°38'. If the base of the cliff is 655 feet from the boat, how high is the cliff (to the nearest foot)?

25) From a balloon 941 feet high, the angle of depression to the ranger headquarters is 58°2'. How far is the headquarters from a point on the ground directly below the balloon (to the nearest foot)?

26) A 32–foot ladder is leaning against the side of a building. If the ladder makes an angle of 27° 54′ with the side of the building, how far is the bottom of the ladder from the base of the building? Round your answer to the hundredths place.

1) –0.9656996
2) 4.8644359
3) 1.2488583
4) 71.0266367°
5) 44.2437357°
6) 38.2821298°
7) 46.6614079°
8) –1
9) 0
10) False
11) False
12) 17 lb
13) –261 lb
14) 17.5 ft to 18.5 ft
15) 4.05 m to 4.15 m
16) 73.955 kg to 73.965 kg
17) B = 71° 41′; a = 86.74 ft; b = 262.02 ft
18) A = 64.9°, B = 25.1°, c = 3.5 cm
19) b = 1.2 in., B = 38.7°, c = 1.9 in.
20) B = 27° 24′, a = 208.64 m, b = 108.15 m
21) a = 3.1 mm, A = 47.9°, b = 2.8 mm
22) 20 m
23) 24.7°
24) 373 ft
25) 587 ft
26) 14.97 ft

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