Precalculus Review for Sections 4.1/4.2/4.8

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Convert the angle to decimal degrees and round to the nearest hundredth of a degree.

1) 57°29′38″ 1) _____

A) 57.49° B) 57.55° C) 57.50° D) 57.45°

Convert the angle to degrees, minutes, and seconds.

2) 87.34° 2) _____

A) 87°20′14″ B) 87°20′24″ C) 87°30′14″ D) 87°30′24″

Convert from degrees to radians. Use the value of π found on a calculator and round answers to four decimal places, as needed.

3) 252° 3) _____

A) $\frac{8\pi}{5}$ B) $\frac{14\pi}{5}$ C) $\frac{7\pi}{5}$ D) $\frac{4\pi}{5}$

Convert the radian measure to degree measure. Use the value of π found on a calculator and round answers to two decimal places.

4) $\frac{5\pi}{6}$ 4) _____

A) 300° B) 216π° C) 150° D) 144°

5) 6 5) _____

A) 343.77° B) 687.14° C) 344.17° D) 687.54°

Use the arc length formula and the given information to find the indicated quantity.

6) r = 4 in., θ = 11 rad; find s 6) _____

A) 44 in. B) 88 in. C) $\frac{4}{11}$ in. D) $\frac{11}{4}$ in.

Solve the problem.

7) The radius of a car wheel is 12 inches. How many revolutions per minute is the wheel making when the car is travelling at 40 mph. Round your answer to the nearest revolution. 7) _____

A) 9 rpm B) 1261 rpm C) 5529 rpm D) 560 rpm

Use the arc length formula and the given information to find the indicated quantity.

8) r = 15 ft, θ = 35°; find s 8) _____

A) 525 ft B) $\frac{35}{12}\pi$ ft C) $\frac{35}{24}\pi$ ft D) 1050 ft

9) s = 8.1 ft, $\theta = \frac{\pi}{3}$ rad; find r 9) _____

A) $\frac{\pi}{24.3}$ ft B) $\frac{24.3}{\pi}$ ft C) 24.3π ft D) 48.6π ft

10) $s = 12$ cm, $\theta = 36°$; find r

10) _____

A) $\frac{120}{\pi}$ cm B) $\frac{30}{\pi}$ cm C) $\frac{1}{3}$ cm D) $\frac{60}{\pi}$ cm

11) $s = 4$ m, $r = 13$ m; find θ

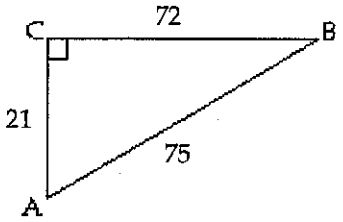
11) _____

A) 52 rad B) $\frac{13}{4}$ rad C) $\frac{4}{13}$ rad D) 104 rad

Find the exact values of the indicated trigonometric functions. Write fractions in lowest terms.

12)

12) _____



Find sin B and tan B.

A) $\sin B = \frac{7}{24}$; $\tan B = \frac{7}{25}$

B) $\sin B = \frac{25}{7}$; $\tan B = \frac{24}{7}$

C) $\sin B = \frac{24}{25}$; $\tan B = \frac{24}{7}$

D) $\sin B = \frac{7}{25}$; $\tan B = \frac{7}{24}$

Assume that θ is an acute angle in a right triangle satisfying the given conditions. Evaluate the indicated trigonometric function.

13) $\cos\theta = \frac{5}{6}$; $\tan\theta$

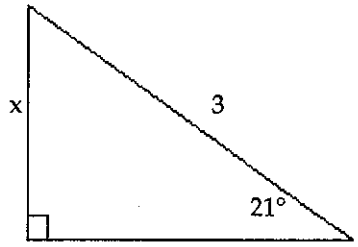
13) _____

A) $\frac{\sqrt{11}}{5}$ B) $\frac{\sqrt{11}}{6}$ C) $\frac{5}{\sqrt{11}}$ D) $\frac{6}{5}$

Solve for x. Round your answer to 2 decimal places.

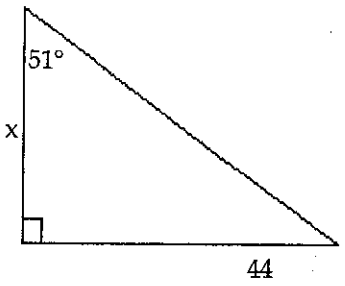
14)

14) _____



A) 8.37 B) 1.08 C) 1.15 D) 2.8

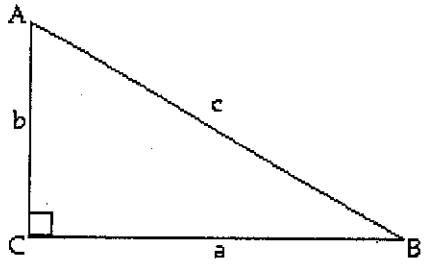
15) 15) _____



A) 34.19 B) 27.69 C) 35.63 D) 54.34

Solve the right triangle for all missing sides and angles to the nearest tenth.

16) 16) _____



c = 6
B = 34°

A) A = 56°, a = 5, b = 3.4 B) A = 56°, a = 4, b = 3.4
C) A = 56°, a = 5, b = 4 D) A = 56°, a = 3.4, b = 5

Solve the problem.

17) From a distance of 50 feet from the base of a building, the angle of elevation to the top of the building is 63°. Estimate the height of the building to the nearest foot. 17) _____

A) 23 feet B) 45 feet C) 25 feet D) 98 feet

18) A kite is currently flying at an altitude of 20 meters above the ground. If the angle of elevation from the ground to the kite is 30°, find the length of the kite string to the nearest meter. 18) _____

A) 23 meters B) 35 meters C) 40 meters D) 10 meters

19) A police helicopter is monitoring the speed of two cars on a straight road. The helicopter is at an altitude of 4200 feet directly above the road. At one instant, the angle of elevation from the first car to the helicopter is 23°, and the angle of elevation from the second car to the helicopter is 15°. How far apart are the two cars to the nearest foot? 19) _____

A) 657 feet B) 215 feet C) 5478 feet D) 5780 feet

20) A person is watching a boat from the top of a lighthouse. The boat is approaching the lighthouse directly. When first noticed the angle of depression to the boat is 16° 23′. When the boat stops, the angle of depression is 49° 29′ . The lighthouse is 200 feet tall. How far did the boat travel from when it was first noticed until it stopped? Round your answer to the hundredths place. 20) _____

A) 494.06 ft B) 509.36ft C) 554.56 ft D) 531.86 ft

21) A tunnel is to be dug from point A to point B. Both A and B are visible from point C. If AC is 175 miles and BC is 380 miles, and if angle C is 90°, find the measure of angle B. 21) _____

A) 24.7° B) 34.1° C) 18.7° D) 31.4°

1) A
2) B
3) C
4) C
5) A
6) A
7) D
8) B
9) B
10) D
11) C
12) D
13) A
14) B
15) C
16) A
17) D
18) C
19) D
20) B
21) A