Chapter 4 Part 2 Review

Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Use a calculator to find the approximate value. Express your answer in degrees rounded to two decimal places.

1) $\tan^{-1}(-18.9)$ 1) _____

2) $\arcsin 0.69$ 2) _____

Solve for x in the given interval.

3) $\sec x = -2, \pi \le x \le \frac{3\pi}{2}$ 3) _____

4) $\cot x = -1, \frac{\pi}{2} \le x \le \pi$ 4) _____

5) $\cot x = \sqrt{3}, \pi \le x \le \frac{3\pi}{2}$ 5) _____

6) $\tan x = -1, \frac{3\pi}{2} \le x \le 2\pi$ 6) _____

7) $\sec x = -\frac{2\sqrt{3}}{3}, \frac{\pi}{2} \le x \le \pi$ 7) _____

8) $\sec x = \sqrt{2}, \frac{3\pi}{2} \le x \le 2\pi$ 8) _____

9) $\csc x = 2, 0 \le x \le \frac{\pi}{2}$ 9) _____

10) $\csc x = -1, 3\pi \le x \le 4\pi$ 10) _____

11) $\cot x = 1, -2\pi \le x \le -\frac{3\pi}{2}$ 11) _____

12) $\tan x = -\frac{\sqrt{3}}{3}, \frac{\pi}{2} \le x \le \pi$ 12) _____

Find the exact value of the real number y.

13) $y = \sin^{-1}\left(\frac{\sqrt{2}}{2}\right)$ 13) _____

14) $y = \arctan(1)$ 14) _____

15) $y = \csc^{-1}(2)$ 15) _____

16) $y = \arcsin\left(\frac{1}{2}\right)$ 16) _____

17) $y = \cot^{-1}(-1)$ 17) _____

18) $y = \arccos\left(\frac{\sqrt{2}}{2}\right)$ 18) _____

19) $y = \sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$ 19) _____

20) $y = \cos^{-1}\left(\frac{\sqrt{2}}{2}\right)$ 20) _____

21) $y = \text{arcsec}(-1)$ 21) _____

22) $= \csc^{-1}(1)$ 22) _____

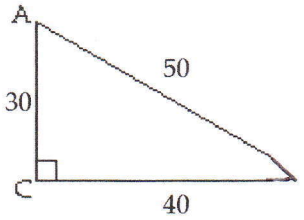
Describe the transformation required to obtain the graph of the given function from the basic trigonometric graph.

23) $y = -\tan\frac{1}{6}x + 5$ 23) _____

24) $y = 10\tan x$ 24) _____

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

25) 25) _____



Find sin A and cos A.

26) Write the equation for the tangent function, period = 2 pi , phase shift pi/8 and a vertical shift of –10. 26) _____

Solve the problem.

27) A building has a ramp to its front doors to accommodate the handicapped. If the distance from the building to the end of the ramp is 23 feet and the height from the ground to the front doors is 4 feet, how long is the ramp? (Round to the nearest tenth.) 27) _____

28) On a sunny day, a flag pole and its shadow form the sides of a right triangle. If the hypotenuse is 50 m long and the shadow is 40 m, how tall is the flag pole? 28) _____

29) A contractor needs to know the height of a building to estimate the cost of a job. From a point 99 feet away from the base of the building, the angle of elevation to the top of the building is found to be 43° 15′. Find the height of the building. Round your answer to the hundredths place. 29) _____

30) 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 12° 38′. When the boat stops, the angle of depression is 47° 45′ . 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. 30) _____

31) From a balloon 1189 feet high, the angle of depression to the ranger headquarters is 55°56'. How far is the headquarters from a point on the ground directly below the balloon (to the nearest foot)? 31) _____

32) From a boat on the lake, the angle of elevation to the top of a cliff is 32°10'. If the base of the cliff is 120 feet from the boat, how high is the cliff (to the nearest foot)? 32) _____

33) When sitting atop a tree and looking down at his pal Joey, the angle of depression of Mack's line of sight is 33°39'. If Joey is known to be standing 40 feet from the base of the tree, how tall is the tree (to the nearest foot)? 33) _____

34. $y = 20 + 5\cos(3\theta + \pi)$

Find

Amp.

period

phase shift

V shift

Domain

Range

1) $-86.97°$
2) $43.63°$
3) $\frac{4\pi}{3}$
4) $\frac{3\pi}{4}$
5) $\frac{7\pi}{6}$
6) $\frac{7\pi}{4}$
7) $\frac{5\pi}{6}$
8) $\frac{7\pi}{4}$
9) $\frac{\pi}{6}$
10) $\frac{7\pi}{2}$
11) $-\frac{7\pi}{4}$
12) $\frac{5\pi}{6}$
13) $\frac{\pi}{4}$
14) $\frac{\pi}{4}$
15) $\frac{\pi}{6}$
16) $\frac{\pi}{6}$
17) $\frac{3\pi}{4}$
18) $\frac{\pi}{4}$
19) $-\frac{\pi}{4}$
20) $\frac{\pi}{4}$
21) π
22) $\frac{\pi}{2}$
23) Reflection across the x-axis, horizontal stretch by a factor of 6, and vertical translation up 5 units.
24) Vertical stretch by a factor of 10
25) $\sin A = \frac{4}{5}$; $\cos A = \frac{3}{5}$
26) $y = \tan\left(\frac{1}{2}\theta - \frac{\pi}{16}\right) - 10$
27) 23.3 ft
28) 30 m
29) 93.13 ft
30) 710.64ft
31) 804 ft
32) 75 ft
33) 27 ft

34. Amplitude = 5
Period $\frac{2\pi}{3}$

PS $-\frac{\pi}{3}$

VS 20

Domain $(-\infty, \infty)$

Range $[15, 25]$