HA2PC S.Hogan
Chapter 4 (PC) Review

This review is identical in format to the exam. Only the actual numerical values and specific contents of the questions will vary.

Multiple-Choice:
Record all answers to the multiple-choice questions here. To clearly distinguish between A and D, it is recommended that you use capital letters. *(2 points eac*

Free-Response: *(40 points…points are listed in italics next to each problem)*
You must show a reasonable amount of work that leads to your answer. Where it is impossible to show your work, explain the mental leaps that you made to draw your conclusion. Where estimation is required, round or truncate all answer to the thousandths place.

31. Sketch the graph of $y = \cos x$ on the interval $[-2\pi, 2\pi]$. *(5 points)*

32. Sketch the graph of $y = \csc x$ on the interval $[-2\pi, 2\pi]$. *(5 points)*

33. Sketch the graph of $y = \cot x$ on the interval $[-2\pi, 2\pi]$. *(5 points)*

34. Identify the amplitude and period and sketch the graph of $y = 4sin(2\pi x) + 1$ for two full periods. *(8 points)*

Amplitude: _____ Period: _____

35. Identify the amplitude and period and sketch the graph of $y = -2\sec\left(\frac{2x}{3}\right) + 3$ for two full periods. *(8 points)*

Amplitude: _____ Period: _____

36. King Kong is a bit of an extreme sports junkie. One day, while strolling through New York City, he decided that he might like to climb the Empire State Building. He looked up to the top of the building and noted that the angle of elevation was 48 degrees. He walked 1000 feet closer to the building and found that the angle of elevation was now 78 degrees. Based on this information, calculate the height of the Empire State Building. Round or truncate your answer to the nearest thousandth of a foot. *(9 points)*

Name_____

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

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

1) 45° 1) _____

A) $\frac{\pi}{5}$ B) $\frac{\pi}{4}$ C) $\frac{\pi}{3}$ D) $\frac{\pi}{6}$

2) –630° 2) _____

A) $-\frac{7\pi}{4}$ B) $\frac{7\pi}{2}$ C) $-\frac{7\pi}{2}$ D) -7π

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

3) $\frac{11\pi}{2}$ 3) _____

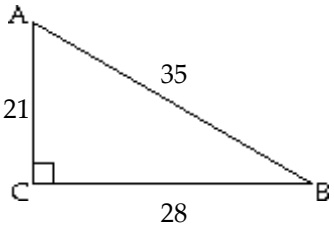
A) 1980° B) 163.64° C) 990° D) 32.73π°

4) 3.6216 4) _____

A) 206.80° B) 207.50° C) 208.00° D) 208.50°

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

5) 5) _____



Find sin A and cos A.

A) sin A = $\frac{4}{5}$; cos A = $\frac{3}{5}$ B) sin A = $\frac{4}{3}$; cos A = $\frac{3}{4}$

C) sin A = $\frac{5}{4}$; cos A = $\frac{5}{3}$ D) sin A = $\frac{3}{5}$; cos A = $\frac{4}{5}$

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

6) csc θ = $\frac{3}{2}$; cos θ 6) _____

A) $\frac{\sqrt{5}}{3}$ B) $\frac{2}{\sqrt{5}}$ C) $\frac{\sqrt{5}}{2}$ D) $\frac{2}{3}$

7) $\sin\theta = \frac{8}{9}$; $\cos\theta$ 7) _____

A) $\frac{\sqrt{17}}{9}$ B) $\frac{9}{8}$ C) $\frac{9}{\sqrt{17}}$ D) $\frac{\sqrt{17}}{8}$

Give the exact value.

8) $\cos\frac{\pi}{4}$ 8) _____

A) $\frac{1}{2}$ B) $\sqrt{2}$ C) $\frac{\sqrt{3}}{2}$ D) $\frac{\sqrt{2}}{2}$

9) $\tan\frac{\pi}{3}$ 9) _____

A) $\frac{\sqrt{3}}{3}$ B) 2 C) $\frac{\sqrt{3}}{2}$ D) $\sqrt{3}$

10) $\sin\frac{\pi}{6}$ 10) _____

A) $\frac{\sqrt{3}}{2}$ B) $\frac{1}{2}$ C) $\frac{\sqrt{2}}{2}$ D) $\frac{\sqrt{3}}{3}$

11) $\csc 30°$ 11) _____

A) 2 B) $\sqrt{2}$ C) $\frac{1}{2}$ D) $\frac{2\sqrt{3}}{3}$

12) $\tan 60°$ 12) _____

A) $\frac{\sqrt{3}}{2}$ B) $\frac{\sqrt{3}}{3}$ C) 2 D) $\sqrt{3}$

13) $\cot 45°$ 13) _____

A) $\frac{2\sqrt{3}}{3}$ B) $\frac{\sqrt{2}}{2}$ C) $\sqrt{2}$ D) 1

Solve the equation.

14) Solve $\sin\theta = \frac{1}{2}$ for θ, where $0° \le \theta \le 90°$. 14) _____

A) 30° B) 90° C) 45° D) 60°

15) Solve $\sec\theta = \sqrt{2}$ for θ, where $0° \le \theta \le 90°$ 15) _____

A) 45° B) 60° C) 90° D) 30°

16) Solve $\tan\theta = \frac{1}{\sqrt{3}}$ for θ, where $0 \le \theta \le \frac{\pi}{2}$. 16) _____

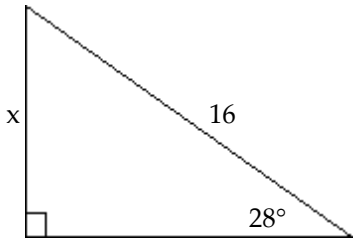
A) $\frac{\pi}{3}$ B) $\frac{\pi}{2}$ C) $\frac{\pi}{6}$ D) $\frac{\pi}{4}$

17) Solve $\sin\theta = \frac{\sqrt{3}}{2}$ for θ, where $0 \le \theta \le \frac{\pi}{2}$. 17) _____

A) $\frac{\pi}{3}$ B) $\frac{\pi}{4}$ C) $\frac{\pi}{6}$ D) $\frac{\pi}{2}$

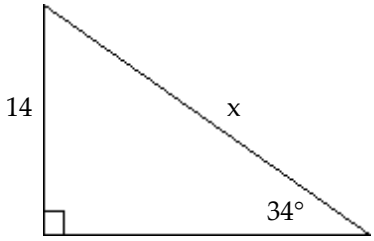
Solve for x. Round your answer to 2 decimal places.

18) 18) _____



A) 14.13 B) 8.51 C) 7.51 D) 34.08

19) 19) _____



A) 25.04 B) 11.61 C) 7.83 D) 16.89

Solve the problem.

20) From a distance of 43 feet from the base of a building, the angle of elevation to the top of the building is 67°. Estimate the height of the building to the nearest foot. 20) _____

A) 18 feet B) 101 feet C) 17 feet D) 40 feet

21) A police helicopter is monitoring the speed of two cars on a straight road. The helicopter is at an altitude of 4000 feet directly above the road. At one instant, the angle of elevation from the first car to the helicopter is 20°, and the angle of elevation from the second car to the helicopter is 16°. How far apart are the two cars to the nearest foot? 21) _____

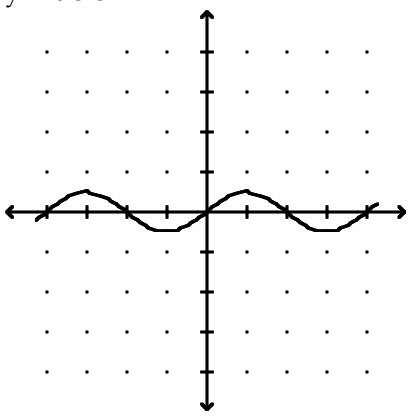
A) 2960 feet B) 2817 feet C) 96 feet D) 309 feet

22) A school building has a height of 48 feet. Its shadow is currently 13.5 feet long, and the shadow of the church next door is 18.5 feet long. Use similar triangles to calculate the height of the church to the nearest tenth of a foot. 22) _____

A) 11,988.0 feet B) 65.8 feet C) 52.0 feet D) 35.0 feet

Find the amplitude of the function.

23) $y = 0.5 \sin 4x$ 23) _____



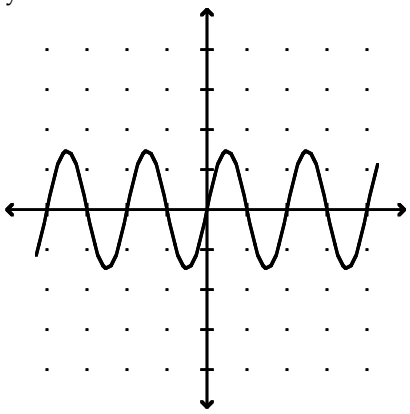
A) $\frac{\pi}{4}$ B) 1 C) 4 D) 0.5

24) $y = -3 \sin \frac{1}{2}x$ 24) _____

A) 4π B) $\frac{3\pi}{2}$ C) 3 D) $\frac{\pi}{3}$

Find the period of the function.

25) $y = 1.5 \sin 8x$ 25) _____



A) $\frac{\pi}{8}$ B) $\frac{\pi}{4}$ C) 1.5 D) 2π

26) $y = -5 \cos \frac{1}{3}x$ 26) _____

A) –5 B) $\frac{5\pi}{3}$ C) 6π D) $\frac{\pi}{3}$

Find the zeros of the function in the interval $[-2\pi, 2\pi]$.

27) $f(x) = -4 \sin x$ 27) _____

A) $0, \pm\frac{\pi}{2}, \pm\pi, \pm\frac{3\pi}{2}, \pm 2\pi$

B) $0, \pm\pi, \pm 2\pi$

C) $\pm\frac{\pi}{2}, \pm\frac{3\pi}{2}$

D) $0, \pm 2\pi$

28) $f(x) = \frac{1}{2}\cos 2x$ 28) _____

A) $\pm\frac{\pi}{4}, \pm\frac{3\pi}{4}, \pm\frac{5\pi}{4}, \pm\frac{7\pi}{4}$

B) $\pm\pi, \pm 3\pi$

C) $0, \pm\frac{\pi}{4}, \pm\frac{3\pi}{4}$

D) $\pm\frac{\pi}{2}, \pm\frac{3\pi}{2}$

Solve the problem.

29) On a sunny day, a flag pole and its shadow form the sides of a right triangle. If the hypotenuse is 40 m long and the shadow is 32 m, how tall is the flag pole? 29) _____

A) 24 m B) 64 m C) 51 m D) 72 m

30) City X is 60 miles due south of City Y, and City Z is 50 miles due west of City X. What is the bearing of City Z from City Y (to the nearest tenth of a degree)? 30) _____

A) S 41.8°W B) S 40.8°W C) S 38.8°W D) S 39.8°W

Answer Key
Testname: HA2PC_CH4(PC)_REVIEW

1) B
2) C
3) C
4) B
5) A
6) A
7) A
8) D
9) D
10) B
11) A
12) D
13) D
14) A
15) A
16) C
17) A
18) C
19) A
20) B
21) A
22) B
23) D
24) C
25) B
26) C
27) B
28) A
29) A
30) D