Chapter 4 Pre-test (4.1.1 - 4.3.1) Name_____

4.1.1: Work with DMS measure and degrees/radians.

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

1) *(1 pt)* $126°49'49''$

2) *(1 pt)* $321°8'50''$

Convert the angle to degrees, minutes, and seconds.

3) *(1 pt)* $232.21°$

4) *(1 pt)* $61.37°$

Find the angle in degrees that describes the compass bearing.

5) *(1 pt)* ESE

A) 157.5° B) 135° C) 112.5° D) 180°

6) *(1 pt)* SSE

A) 112.5° B) 157.5° C) 202.5° D) 135°

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

7) *(1 pt)* 16.59°

Convert the radian measure to degree measure.

8) *(1 pt)* $\pi/5$

A) $36\pi°$ B) $(\pi/5)°$ C) 36° D) 0.628°

Convert from degrees to radians.

9) *(1 pt)* -60°

A) $-\frac{\pi}{3}$ B) $-\frac{\pi}{2}$ C) $-\frac{\pi}{5}$ D) $-\frac{\pi}{4}$

Convert the radian measure to degree measure.

10) *(2 pts -1 for correct setup and 1 for correct answer)* $-\frac{19}{6}\pi$

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

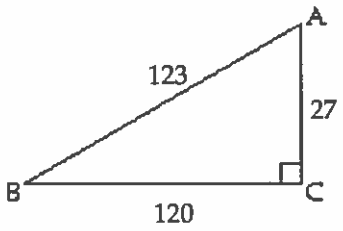
11) 1.8606

A) 107.60° B) 105.90° C) 106.60° D) 107.10°

4.2.1: Know & evaluate the 6 basic trigonometric functions.

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

12) *(2 pts –1 for cos B, 1 for cot B)*



Find cos B and cot B.

Give the exact value.

13) *(1 pt)* $\tan\frac{\pi}{4}$

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

14) *(1 pt)* $\sec 45°$

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

Use a calculator to evaluate the function. Round your answer to 4 decimal places.

15) *(2 pts)* csc 0.1852

A) 0.9829 B) 1.0174 C) 0.1841 D) 5.4306

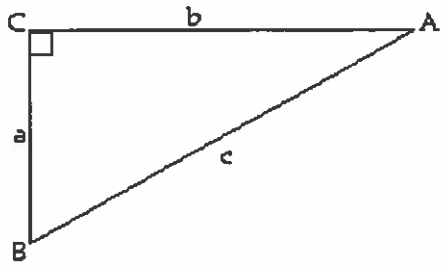
Use a calculator to find the function value to four decimal places.

16) *(1 pt)* sin 50°15'55"

A) 1.7705 B) 0.6374 C) 0.7690 D) 1.2089

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

17) *(4 pts -1 point for each missing piece)*



c = 17

B = 58°

Solve the problem.

18) *(3 pts -1 for a diagram, 1 for the correct setup, 1 for the correct answer)*

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.

4.3.1: Find an angle & its coterminal angle.

Find the measures of two angles, one positive and one negative, that are coterminal with the given angle.

19) *(1 pt)* 202°

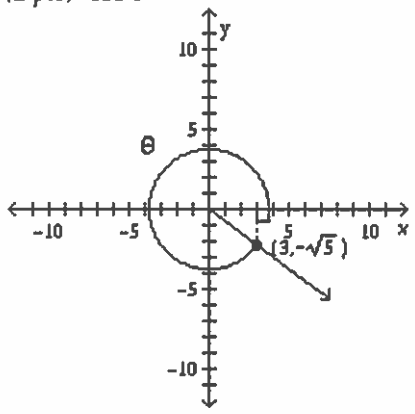
A) 562°; -158° B) 562°; -248° C) 382°; -158° D) 472°; -68°

20) *(1 pt)* $\frac{8\pi}{5}$

A) $\frac{2\pi}{5}; -\frac{18\pi}{5}$ B) $\frac{13\pi}{5}; -\frac{2\pi}{5}$ C) $\frac{18\pi}{5}; -\frac{2\pi}{5}$ D) $\frac{13\pi}{5}; -\frac{13\pi}{5}$

Find the trigonometric value for the angle shown.

21) *(2 pts)* $\cos\theta$



Determine whether the given function is positive or negative for values of t in the specified quadrant.

22) *(1 pt)* Quadrant III, sec t

A) Positive B) Negative

Evaluate without using a calculator by using ratios in a reference triangle.

23) *(1 pt)* $\tan 300°$

24) *(1 pt)* $\cos\left(-\frac{5\pi}{4}\right)$

25) *(1 pt)* $\cot\frac{3\pi}{4}$

4.4.1: I can describe the transformations of the parent function f(x)=sin(x) or g(x)=cos(x) and use these transformations to write a sinusoidal function.

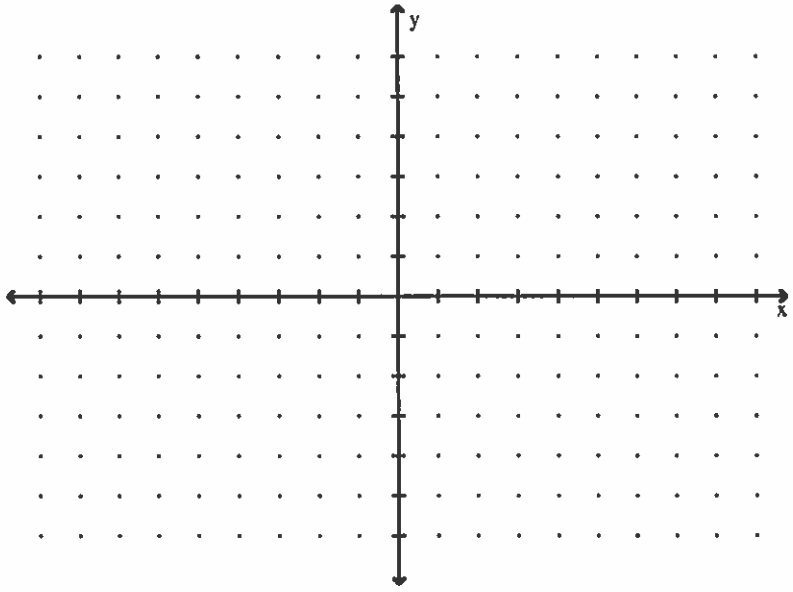
Write an equation for a sine curve that has the given amplitude and period, and which passes through the given point.

26) Amplitude $\frac{1}{4}$, period 5π, point (0, 0)

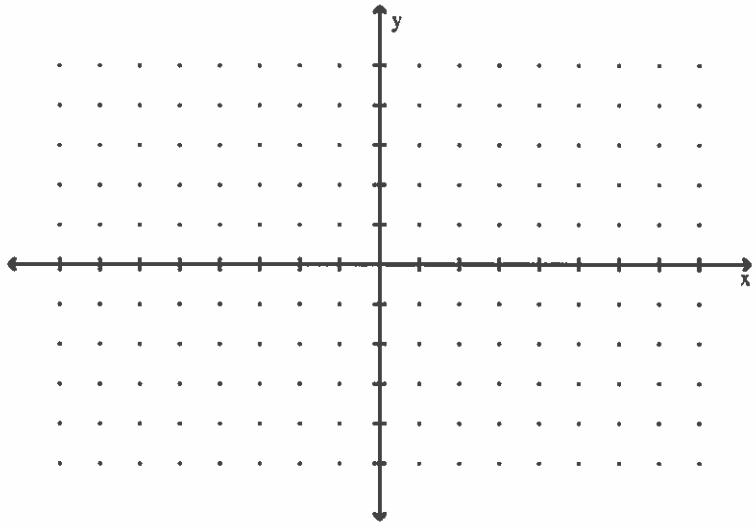
27) Amplitude 6, period $\pi/6$, point (1/3, 0)

Find the specified quantity.

28) Analyze the function by determining the phase and vertical shifts, the amplitude, the frequency and the amplitude of $y = 5 + 3\sin\left(2x - \frac{\pi}{6}\right)$. Please also find the domain and range for the function. Sketch a graph of the function below.



29) Analyze the function by determining the phase and vertical shifts, the amplitude, the frequency and the amplitude of of $y = -3\cos\left(2x + \frac{\pi}{2}\right)$. Please also find the domain and range for the function. Sketch a graph of the function below.



Solve the problem.

30) The weekly sales in thousands of items of a product has a seasonal sales record approximated by $n = 73.68 + 17.2\sin\frac{\pi t}{24}$ (t = time in weeks with $t = 1$ referring to the first week in the year). During which week(s) will the sales equal 82,280 items?

31) The position of a weight attached to a spring is $s(t) = -6\cos 16\pi t$ inches after t seconds. What is the maximum height that the weight reaches above the equilibrium position and when does it first reach the maximum height?

Answer Key
Testname: CH 4 PRETEST

1) 126.83°
2) 321.15°
3) 232°12′21″
4) 61°22′12″
5) C
6) B
7) 0.2896
8) C
9) A
10) −570°
11) C
12) $\cos B = \frac{40}{41}$; $\cot B = \frac{40}{9}$
13) A
14) A
15) D
16) C
17) A = 32°, a = 9, b = 14.4
18) 40 meters
19) A
20) C
21) $\cos\theta = \frac{3\sqrt{14}}{14}$
22) B
23) $-\sqrt{3}$
24) $-\frac{\sqrt{2}}{2}$
25) −1
26) $y = \frac{1}{4}\sin\frac{2x}{5}$
27) $y = 6\sin(12x - 4)$ or $f(x) = 6 \cdot \sin(12(x - 1/3))$
~~28) $\frac{\pi}{12}$~~
~~29) 3~~
30) week 4, week 20, and week 52
31) The maximum height of 6 inches is first reached after 0.06 seconds.

$y = 3\sin(2(x - \pi/12)) + 5$

28) amp = 3 $k = 5$ $h = \pi/12$ $b = 2$ period = π

D: $(-\infty, \infty)$ R: $[2, 8]$

29) $y = -3\cos(2(x + \pi))$

amp = 3 + Reflection over h.l.o.s.

period = π $b = 2$ $h = -\pi$ $k = 0$

D: $(-\infty, \infty)$ R: $[-3, 3]$

$\frac{\pi}{6} = \frac{2\pi}{b}$ $12\pi = \pi b$

$b = 12$

$h = 1/3$