Math 1316 - Practice Exam 2 - Spring 20

MULTIPLE CHOICE SECTION. (5 pts each) Choose the correct answer for each question. Select one choice only. No work will be graded. No partial credit.

Convert the degree measure to radians. Leave answer as a multiple of π.

1) 288° 1) _____

A) $\frac{8\pi}{5}$ B) $\frac{4\pi}{5}$ C) $\frac{9\pi}{5}$ D) $\frac{16\pi}{5}$

Convert the radian measure to degrees. Round to the nearest hundredth if necessary.

2) $-\frac{9\pi}{6}$ 2) _____

A) −270.5° B) −270° C) −271° D) −269.5°

Assume that the cities lie on the same north–south line and that the radius of the earth is 6400 km.

3) Find the distance between City E, 35° N and City F, 44° S. (Round to the nearest kilometer.) 3) _____

A) 1005 km B) 8824 km C) 997 km D) 8832 km

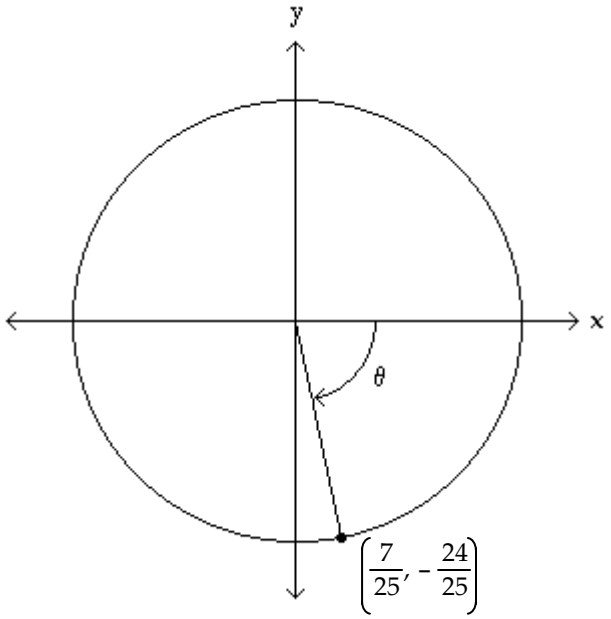
Solve the problem.

4) A circular sector has an area of 486 ft^2. The radius of the circle is 9 feet. What is the arc length of the sector? 4) _____

A) 12 ft B) 110 ft C) 108 ft D) 54 ft

The figure shows an angle θ in standard position with its terminal side intersecting the unit circle. Evaluate the indicated circular function value of θ.

5) Find csc θ. 5) _____



A) $\frac{24}{7}$ B) $-\frac{25}{24}$ C) $-\frac{25}{7}$ D) $\frac{25}{24}$

Find the exact value of s in the given interval that has the given circular function value.

6) $\left[\frac{3\pi}{2}, 2\pi\right]$; $\tan s = -\frac{\sqrt{3}}{3}$ 6) _____

A) $s = \frac{7\pi}{4}$ B) $s = \frac{\pi}{6}$ C) $s = \frac{5\pi}{3}$ D) $s = \frac{11\pi}{6}$

Find the exact values of s in the given interval that satisfy the given condition.

7) $[0, 2\pi)$; $4 \sin^2 s = 3$ 7) _____

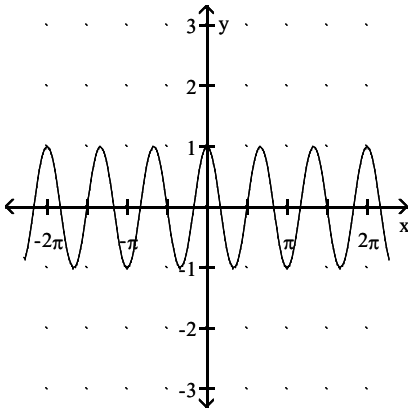
A) $\frac{\pi}{3}, \frac{2\pi}{3}$ B) $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$

C) $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$ D) $\frac{\pi}{6}, \frac{5\pi}{6}$

Match the function with its graph.

8) 1) $y = \sin 3x$ 2) $y = 3 \cos x$
3) $y = 3 \sin x$ 4) $y = \cos 3x$ 8) _____

A)



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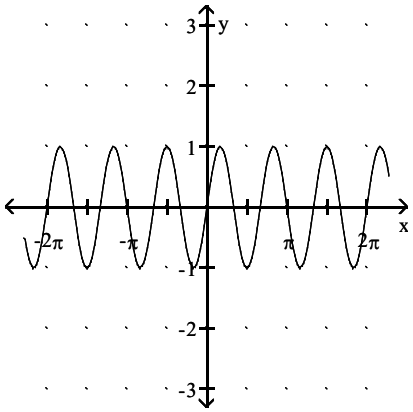

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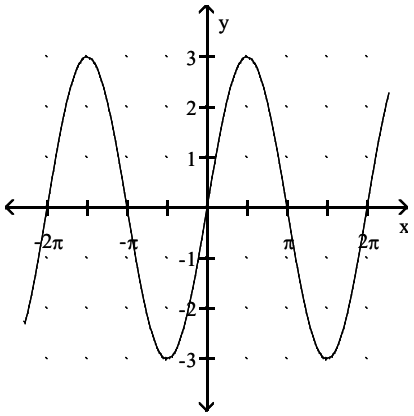
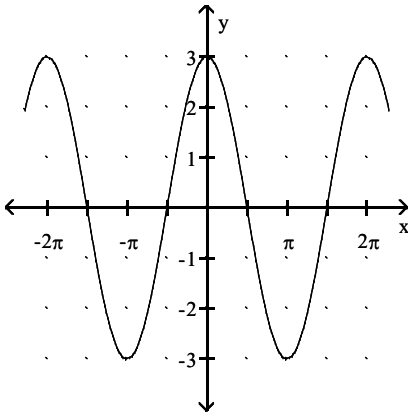


D)



A) 1A, 2B, 3C, 4D B) 1A, 2D, 3C, 4B C) 1B, 2D, 3C, 4A D) 1A, 2C, 3D, 4B

Find the specified quantity.

9) Find the period of $y = 5 \sin\left(\frac{1}{4}x - \frac{\pi}{2}\right)$. 9) _____

A) $\frac{\pi}{2}$ B) 5π C) 8π D) 4π

10) Find the amplitude of $y = -2 \cos\left(3x + \frac{\pi}{4}\right)$. 10) _____

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

Find the phase shift of the function.

11) $y = -5 \cos\left(x + \frac{\pi}{4}\right)$ 11) _____

A) $\frac{\pi}{4}$ units to the right B) 4 units up

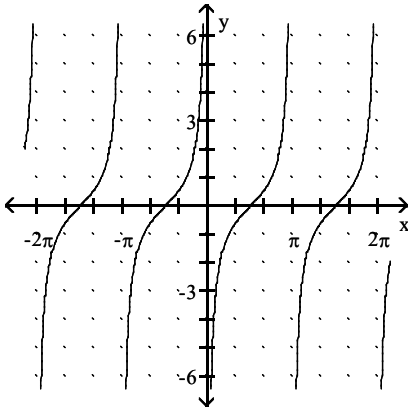
C) 4 units down D) $\frac{\pi}{4}$ units to the left

Match the function with its graph.

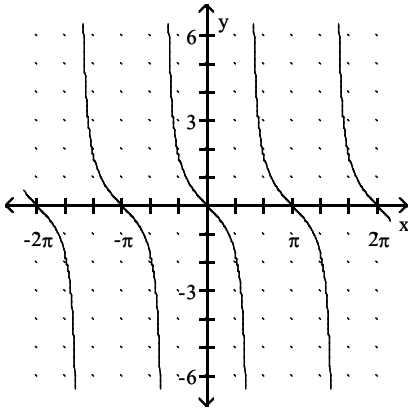
12) 1) $y = -\tan\left(x - \frac{\pi}{2}\right)$ 2) $y = \tan\left(x + \frac{\pi}{2}\right)$ 12) _____

3) $y = -\cot\left(x - \frac{\pi}{2}\right)$ 4) $y = \cot\left(x + \frac{\pi}{2}\right)$

A)



B)



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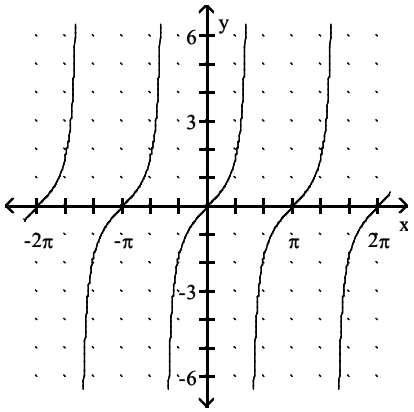
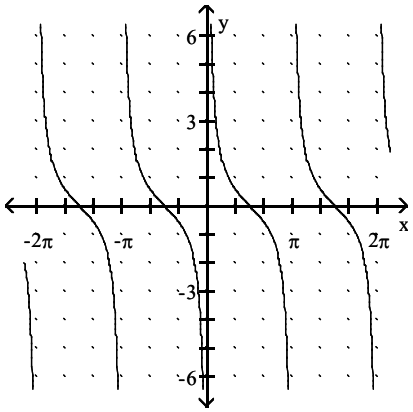


D)



A) 1C, 2B, 3D, 4A B) 1D, 2A, 3C, 4B C) 1A, 2D, 3B, 4C D) 1A, 2B, 3C, 4D

SHORT ANSWER SECTION. (5 pts each) Write the answer in the box. Write the FINAL ANSWER ONLY. No work will be graded. No partial credit.

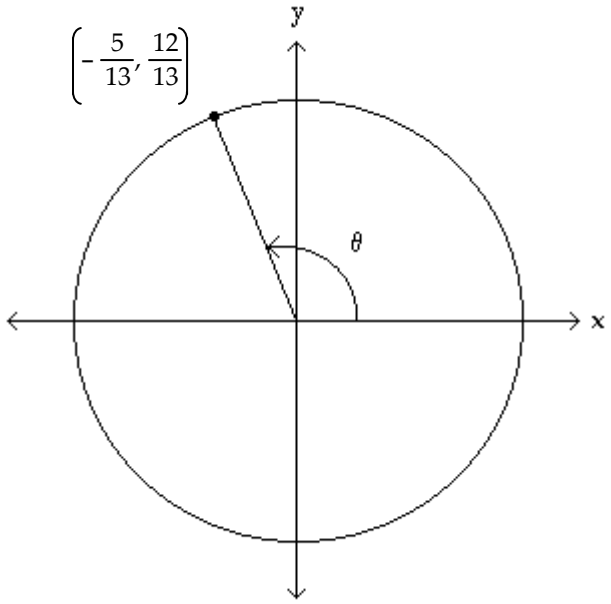
Find the area of a sector of a circle having radius r and central angle θ. If necessary, express the answer to the nearest tenth.

13) $r = 7.4$ mi, $\theta = 314°$ 13) _____

Answer ONLY:

The figure shows an angle θ in standard position with its terminal side intersecting the unit circle. Evaluate the indicated circular function value of θ.

14) Find cot θ. 14) _____



Answer ONLY:

Find the exact value of s in the given interval that has the given circular function value.

15) $\left[\pi, \frac{3\pi}{2}\right]$; tan s = 1 15) _____

Answer ONLY:

Find the value of s in the interval [0, π/2] that makes the statement true. Round to four decimal places.

16) csc s = 1.1691 16) _____

Answer ONLY:

ESSAY. (5 pts each) Show all work to justify your answer. Answer with no work or insufficient work will receive no credit. Partial credit may be given.

Find the exact values of s in the given interval that satisfy the given condition.

17) $[0, 2\pi)$; $\tan^2 s = \frac{1}{3}$

Solution (SHOW ALL WORK):

Graph the function in one cycle.

18) $y = -2 + \sin\left(x + \frac{\pi}{2}\right)$

Answer Key
Testname: 1316-PRACTICETEST2-SPR20

1) A
2) B
3) B
4) C
5) B
6) D
7) C
8) C
9) C
10) B
11) D
12) B
13) 150.1 mi^2
14) $-\frac{5}{12}$
15) $s = \frac{5\pi}{4}$
16) 1.0262
17) $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$