MATH 111 - Exam 2 - Summer 2011 - Section 1

No books, notes, or calculators allowed.

Do NOT write on this exam.

There is no time limit.

1. The measure of an angle is $75°$. Find the measure of the angle in radians.

   (a) $\frac{5\pi}{12}$ (b) $-\frac{5\pi}{12}$ (c) $\frac{3\pi}{4}$ (d) $\frac{5}{12}$ (e) $-\frac{5}{12}$ (f) $\frac{3}{4}$

2. Find the radius of a circle who has a sector of area 6π and central angle $60°$.

   (a) 2 (b) 4 (c) 6 (d) 8 (e) 10 (f) 12

3. Find the exact value of $\cos(\frac{\pi}{6})-\sin(\frac{\pi}{3})$.

   (a) $\sqrt{3}$ (b) 1 (c) $\frac{\sqrt{3}-1}{2}$ (d) 0 (e) $\frac{\sqrt{3}}{2}$ (f) $\frac{\sqrt{3}+1}{2}$

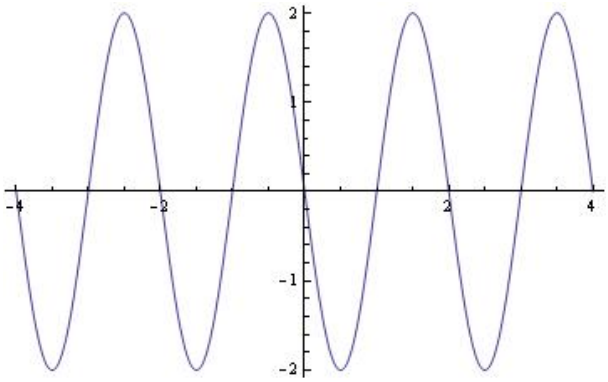
4. Find the exact value of $\csc(\frac{21\pi}{2})$.

   (a) 0 (b) -1 (c) $\frac{1}{2}$ (d) 1 (e) $\frac{\sqrt{2}}{2}$ (f) Undefined

5. The point $(-\frac{3}{5}, -\frac{4}{5})$ is on the terminal side of an angle θ in the standard position on the unit circle. Find the exact value of $\cot(\theta)$.

   (a) $-\frac{3}{5}$ (b) $-\frac{4}{5}$ (c) $\frac{3}{4}$ (d) $-\frac{3}{4}$ (e) $\frac{4}{3}$ (f) $-\frac{4}{3}$

6. What is the equation of the graph?
   (a) $y = 2\sin(2x)$
   (b) $y = -2\sin(2\pi x)$
   (c) $y = 2\sin(\pi x)$
   (d) $y = \sin(\pi x)$
   (e) $y = -2\sin(\frac{\pi}{2}x)$
   (f) $y = -2\sin(\pi x)$



7. What is the exact value of the expression: $\frac{\sin(5)}{\csc(5)} + \frac{\cos(5)}{\sec(5)}$?

   (a) 0 (b) 1 (c) -1 (d) 2 (e) -2 (f) $\frac{1}{2}$

8. If $\cos\theta = -\frac{7}{25}$ and $\csc\theta = \frac{25}{24}$, what is the value of $\cot\theta$?

(a) $\frac{24}{7}$ (b) $-\frac{24}{7}$ (c) $\frac{7}{24}$ (d) $-\frac{7}{24}$ (e) $-\frac{25}{24}$ (f) $-\frac{25}{7}$

For problems 9 and 10, $\cos\theta = -\frac{5}{13}$ and $\cot\theta > 0$.

9. Which quadrant is θ in?

(a) I (b) II (c) III (d) IV (e) V

10. What is the exact value of $\tan\theta$?

(a) $\frac{13}{2}$ (b) $-\frac{12}{5}$ (c) $\frac{12}{5}$ (d) $\frac{5}{13}$ (e) $\frac{5}{12}$ (f) $-\frac{5}{12}$

11. What is the equation of a sine function that has amplitude 3 and period 5?

(a) $y = 3\sin(5x)$
(b) $y = 5\sin(3x)$
(c) $y = 3\sin(5\pi x)$
(d) $y = 5\sin(3\pi x)$
(e) $y = -3\sin(\frac{2\pi}{5}x)$
(f) $y = -3\sin(\frac{3\pi}{5}x)$

12. What is the phase shift of $y = -\frac{1}{2}\sin(\frac{2}{3}x - 4)$?

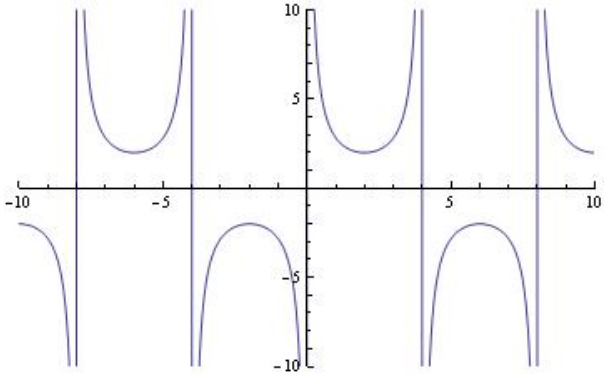
(a) 6 (b) $\frac{8}{3}$ (c) 4 (d) -6 (e) $-\frac{8}{3}$ (f) -4

13. What is the range of $\sec\theta$?

(a) All real numbers
(b) All reals except multiples of π
(c) $-1 \le y \le 1$
(d) All reals except even multiples of π
(e) All reals except odd multiples of $\frac{\pi}{2}$
(f) $y \ge 1$ or $y \le -1$

14. What is the equation of the graph?

(a) $y = 2\csc(\frac{\pi}{4}x)$
(b) $y = 2\csc(8x)$
(c) $y = -2\csc(\frac{\pi}{4}x)$
(d) $y = -2\csc(8x)$
(e) $y = 4\csc(\pi x)$
(f) $y = 4\csc(\frac{\pi}{2}x)$

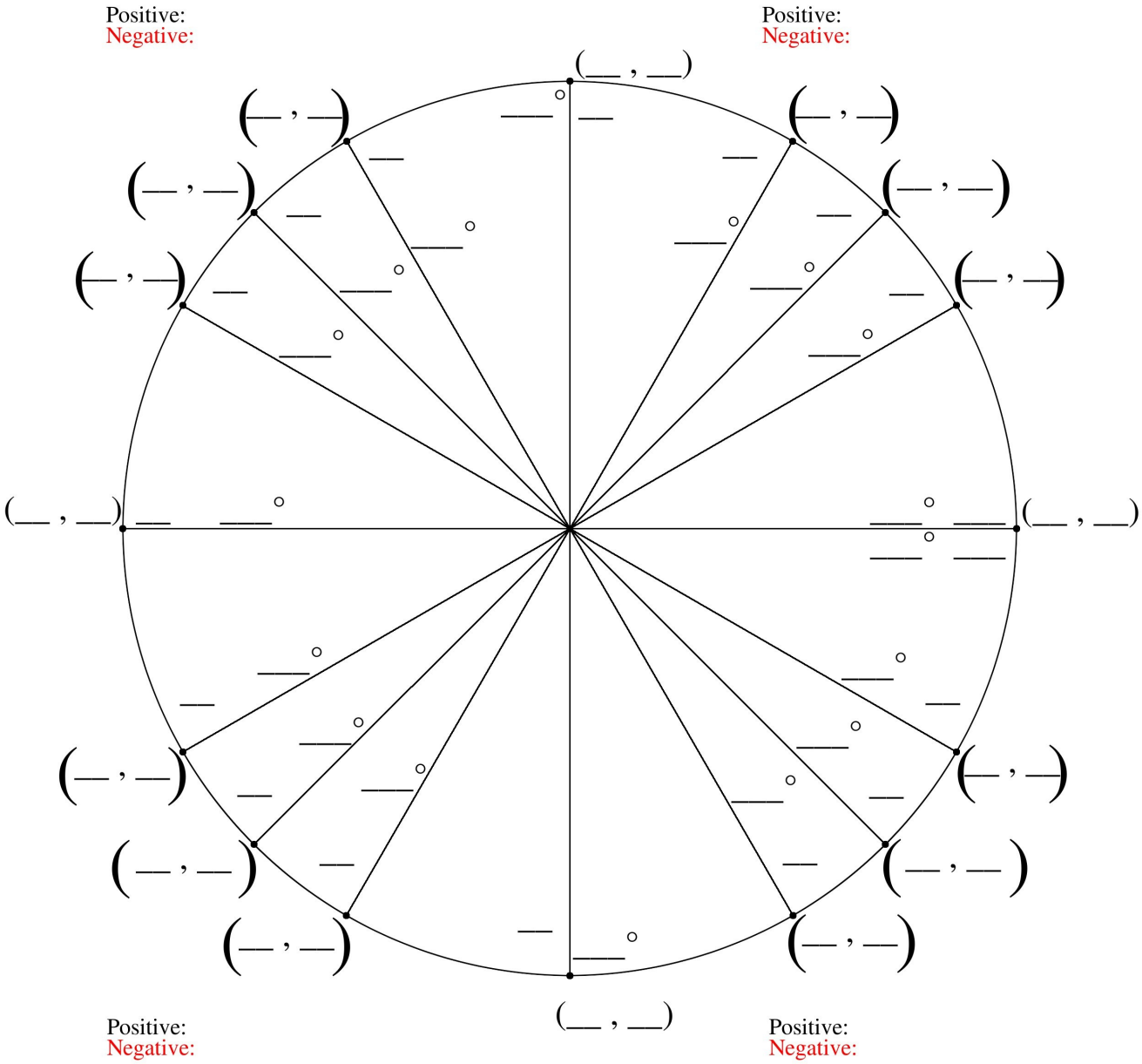


15. Which function has amplitude 3, phase shift 2 and period 3?

(a) $y = 3\sin(3x - 2) + 1$
(b) $y = -3\sin(3x - \frac{2}{3})$
(c) $y = 3\sin(\frac{2\pi}{3}x - \frac{4\pi}{3})$
(d) $y = 3\sin(\frac{2\pi}{3}x + \frac{4\pi}{3}) + 1$
(e) $y = 3\sin(\frac{2\pi}{3}x - 2)$
(f) $y = -2\sin(3x - 3)$

16. Fill in the blank unit circle. This is weighted as much as five questions.

Fill in The Unit Circle



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1. a
2. c
3. d
4. d
5. c
6. f
7. b
8. d
9. c
10. c
11. e
12. a
13. f
14. a
15. c