Classwork 17 Intermediate Algebra MTH 35 Topic: Unit Circle Trigonometry

Name:		
Using the figures belo	w, find the exact value of the following.	
1. $\sin(5\pi/6) =$	7. $\cos(-270^{\circ}) =$	
2. $\tan(3\pi/4) =$	8. $\tan(-150^{\circ}) =$	
3. $\cos(-\pi/4) =$	9. $\cot(210^\circ) =$	
4. $\sin(8\pi/3) =$	10. $\sin(-300^{\circ}) =$	
5. $\sec(5\pi/4) =$	11. $\sec(315^{\circ}) =$	
6. $\csc(7\pi/6) =$	12. $\cos(660^{\circ}) =$	



Classwork 18 Intermediate Algebra MTH 35 Instructor: Abhijit Champanerkar April 27th 2015 Topic: Unit Circle Trigonometry

Name: ____

Fill in the table. Using reference angles, find the exact value of the following.

θ	$0 = 0^{\circ}$	$\pi/6 = 30^{\circ}$	$\pi/4 = 45^{\circ}$	$\pi/3 = 60^{\circ}$	$\pi/2 = 90^{\circ}$	$\pi = 180^{\circ}$
$\sin \theta$						
$\cos \theta$						
an heta						



Classwork 19 Intermediate Algebra MTH 35 **Topic: Graphing Trigonometric functions**

Name: _____

Find the amplitude, period, frequency and phase shift for the following functions. Plot them on the given grid by carefully choosing the scale on both the axes.

1. $y = \sin 2t$





Period = _____



Phase shift = _____

2. $y = \cos(t/2)$



Period = _____

Frequency = _____





Period = _____



Phase shift = _____

4. $y = -4\sin(x/2)$



Period = _____

Frequency = _____

Classwork 20 Intermediate Algebra MTH 35 **Topic: Graphing Trigonometric functions**

Name:

Find the amplitude, period, frequency and phase shift for the following functions. Plot them on the given grid by carefully choosing the scale on both the axes.

1. $y = \cos 2(x + \pi/2)$



Amplitude=

Period = _____

Frequency = _____

Phase shift = _____

2. $y = \sin 3(x + \pi/6)$

Amplitude=_____

Period = _____

Frequency = _____

3.
$$y = \sin \frac{1}{2}(x + \pi)$$





Period = _____



Phase shift = _____

4. $y = -4\cos 2(x + \pi/4)$



Period = _____

Frequency = _____

Final Exam

College Algebra and Trigonometry MTH 123, Section 6815, Spring 2012 Instructor: Abhijit Champanerkar & Jesenko Vukadinovic Version A



Version

Date: May 21st 2012

Points: 100

Time: 100 min

Name: _____

To receive full credit, you must explain your answers. Each question is worth 10 points.

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
Total	

BEST OF LUCK

- 1. Circle the correct answer.
 - (a) The function f(x) = sin(x² + 1) is:
 (a) Odd function
 (b) Even function
 (c) Neither
 - (b) The function $f(x) = \sin x$ is one-to-one function on the interval $[0, 2\pi]$.
 - (a) True (b) False (c) Neither
 - (c) For any functions f(x) and g(x), $f \circ g(x) = g \circ f(x)$.
 - (a) True (b) False (c) Neither
 - (d) A quadratic function always has an absolute max/min on the interval (-∞,∞).
 (a) True
 (b) False
 (c) Neither
 - (e) An exponential functions always has an absolute max/min on the interval (-∞,∞).
 (a) True
 (b) False
 (c) Neither
 - (f) The function $f(x) = \sin 2x$ has an inverse on the interval $[0, 2\pi]$.
 - (a) True (b) False (c) Neither
 - (g) Simplify $\sqrt[3]{(x^3y)^2y^4}$. (a) x^4y^2 (b) x^4y^4 (c) x^2y^4 (d) x^2y^2
 - (h) What is the average rate of change of $f(x) = 2x^2 3$ between x = 2 and x = 3?
 - (a) 12 (b) 10 (c) 15 (d) 20

2. (a) Find the slope and equation of the line passing through points (-1, 2) and (2, -7). Write your final answer in the slope-intercept form y = mx + b.

(b) Let $f(x) = 7 - 8x - 2x^2$. Put f(x) in standard form $a(x - h)^2 + k$. Does f(x) have a maximum or minimum ? Find it.



3. (a) The graph of y = f(x) is as shown. Sketch the graphs of the following functions :

(b) The graphs of y = f(x) and y = g(x) are given below.



- (i) (f g)(2) =_____
- (ii) $(g \circ f)(4) =$ _____
- (iii) $(f \circ g)(-2) =$ _____
- (iv) Intervals on which f(x) increasing _____



4. (a) Sketch the line 2x - 3y = 6. Write down the x - & y-intercepts and the slope.

(b) You want to fence off a rectangular plot of land adjacent to a river (with no fence along the river). Find the area of the largest plot possible with 400 ft of fencing. Please explain your answer. (You may use a calculator for this problem.)

(ii)
$$f(x) = e^{3x-2} - 6$$

(b) If $f(x) = \sin 2x$ and $g(x) = 3^{x-1}$, find the following. (i) $f \circ g(x)$

(ii) $g \circ f(x)$

6. (a) Evalutate the following. (i) $\log_3 \frac{1}{27}$.

(ii) $\log_5 7$.

(b) Solve the following equations. (i) $\log_2(3-2x) = 3$.

(ii)
$$e^{5x} - 9 = 0$$
.

7. (a) John deposited \$18,000 today in a bank where the interest rate is 5% compounded continuously according to the formula A(t) = P e^{rt}.
(i) How much will he have after 6 years.

(ii) How long does it take to double his money?

(b) A certain radioactive material decays according to the formula n(t) = n₀ e^{-0.0231t}
(i) If in 2010 we have 80 gram of this material, how much will remain in 2025.

(ii) Find the half life of this material?

θ	0	$\pi/6$	$\pi/4$	$\pi/3$	$\pi/2$
$\sin \theta$					
$\cos heta$					
an heta					

8. (a) Fill in the table using exact values.

(b) Find the reference numbers for the angles below and the exact value of the following. (Answers in decimal will recieve a zero.)
(i) cos(120°)

(ii) $\tan(\frac{5\pi}{4})$

9. (a) Let $\cos \theta = -3/5$, and $\theta > 0$ is in quadrant III. Find the exact values of the remaining five trigonometric functions.

(b) Sketch one period of the graph of $y = 3\sin(2x)$ to scale. Find the amplitude and period. Mark five equidistant points on the x-axis and the values of the function at those points on the graph.





10. Sketch the graph of any five of the functions below.

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ROUGH WORK