MA 15300 Exam 2, Form 01 Fall 2015

Name: _____

Instructions:

1. Fill in your name above.

2. You must use a #2 pencil on the answer sheet.

3. On the answer sheet:
   a. Fill in your last name, first name and middle initial **and** blacken the appropriate spaces.
   b. Fill in your student identification number **and** blacken the appropriate spaces; **THIS IS THE 10-DIGIT NUMBER PRINTED ON YOUR STUDENT ID.**
   c. Fill in your section number **and** blacken the appropriate spaces; **THIS IS AVAIABLE IN THE TABLE BELOW**
   d. Fill in your test/quiz number from above (01)
   e. Sign your name

4. Make sure that the cover of this exam matches the color of your answer sheet. If you are color blind, ask the person sitting next to you for assistance.

5. There are 15 questions on the exam. On the answer sheet, blacken your choice of the correct answer in the spaces provided for questions 1 – 15. Do all of your work on the question sheet. Turn in the answer sheet when you leave and keep the question sheet. **Only the answer sheet will be graded.**

6. All questions are worth the same. **Please answer every question**. There is no penalty for guessing.

7. A TI-30Xa scientific calculator is the ONLY calculator that may be used on the exam. **No other calculators are allowed. Cell phones, iPods, books, and scrap paper are also NOT allowed.**

8. The exam is self-explanatory. Do **NOT** ask any questions about any of the exam problems.

9. When you are finished, you will need to take your answer sheet and your student ID to the proctor to submit your work and have your answer sheet and student ID inspected.

Class Time	Instructor	Section #		Class Time	Instructor	Section #
MWF 7:30	Lindsey Hill	**0041**		MWF 11:30	Theodore Stueve	**0101**
MWF 8:30	Jenna Beckley	**0024**		MWF 1:30	Dan Oprea	**0073**
MWF 8:30	Lindsey Hill	**0083**		MWF 2:30	Steve Grenat	**0033**
MWF 8:30	Mary Ritter	**0096**		MWF 2:30	Joshua Goodwin	**0098**
MWF 9:30	Vivek Mukundan	**0015**		MWF 3:30	Carolyn Henry	**0063**
MWF 9:30	Raika Sina	**0062**		MWF 3:30	Vianney Filos-Gonzalez	**0064**
MWF 9:30	Rachel Aker	**0093**		MWF 3:30	Steve Grenat	**0072**
MWF 10:30	Vivek Mukundan	**0021**		MWR 4:30	Steve Painter	**0023**
MWF 10:30	Nicholas Montan	**0092**		MWR 4:30	Carolyn Henry	**0095**
MWF 10:30	Jennifer Losby	**0099**		MWF 4:30	Patrick Devlin	**0065**
MWF 11:30	Herbert Cruz	**0100**		ONLINE	Patrick Devlin	**9999**

1. Find all the real solutions of the following equation. Choose the answer that best describes the solution(s).

$$\frac{1}{x}+\frac{1}{2}=\frac{1}{x-2}$$

A. There are two solutions.
One is positive and one is negative.

B. There are two solutions.
Both are positive.

C. There are two solutions.
Both are negative.

D. There are no real solutions.

E. There are an infinite number of solutions

2. Two trains leave a station at 11:00am. One train travels north at a rate of 75 mph and another travels east at a rate of 60 mph. Assuming the trains do not stop, about how many minutes will it take for the trains to be 250 miles apart?

A. Less than 150 minutes

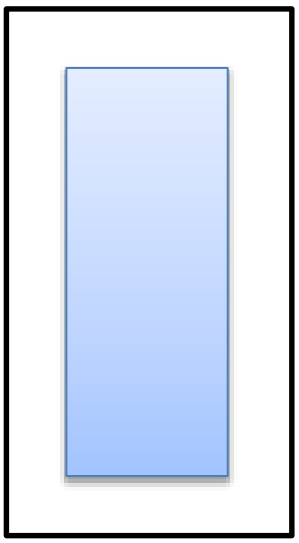
B. Between 150 and 180 minutes

C. Between 180 and 210 minutes

D. Between 210 and 240 minutes

E. More than 240 minutes

3. The length of a rectangular pool is to be four times its width, and a sidewalk 6 feet wide will surround the pool. If a total area of $1440\ ft^2$ has been set aside for construction, what are the dimensions of the pool?



A. $6\ ft \times 24\ ft$

B. $8\ ft \times 32\ ft$

C. $10\ ft \times 40\ ft$

D. $12\ ft \times 48\ ft$

E. None of the above

4. Find all the real solutions of the following equation. Choose the answer that best describes the solution(s).

$$x + \sqrt{5x + 19} = -1$$

A. There are two solutions.
One is positive and one is negative.

B. There are two solutions.
Both are negative.

C. There are two solutions.
Both are positive.

D. There is one solution.
It is negative.

E. There is one solution.
It is positive.

5. Find all the real solutions of the following equation.

$$x^4 + 10x^2 - 24 = 0$$

A. $x = \pm 2$

B. $x = \pm\sqrt{2}$

C. $x = \pm\sqrt{6}$

D. $x = \pm\sqrt{2}, \pm 2\sqrt{3}$

E. $x = \pm 2, \pm\sqrt{6}$

6. Find the equation of a line with an x-intercept of -5 and a y-intercept of 3.

A. $y = -\frac{5}{3}x - \frac{5}{3}$

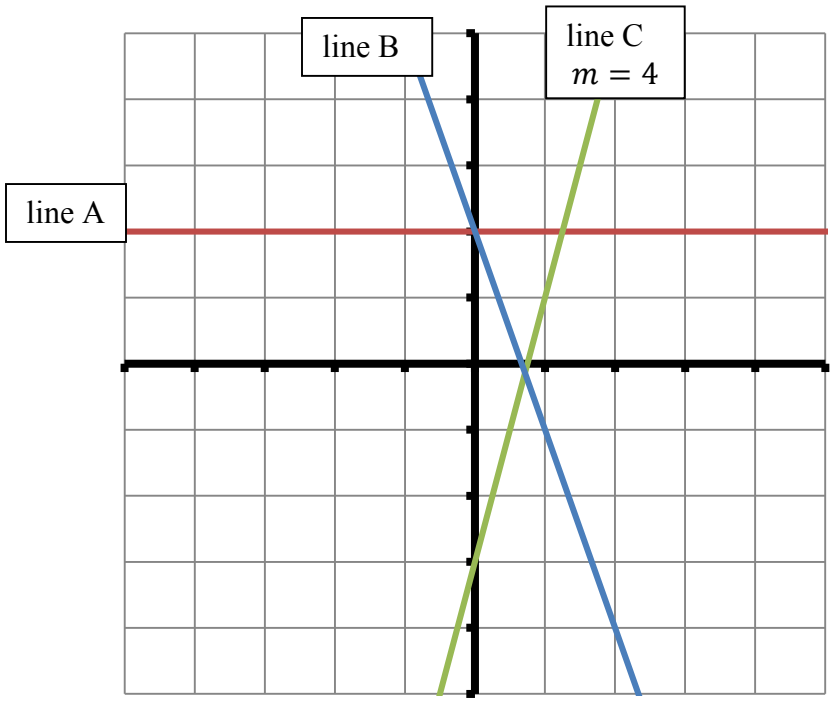
B. $y = \frac{5}{3}x - 5$

C. $y = -\frac{3}{5}x + \frac{3}{5}$

D. $y = \frac{3}{5}x + 5$

E. None of the above

7. Identify the slope of each of the following lines (A, B, and C), then determine which of the following statements is/are true about those lines. (each tick mark represents 1 unit)



I.	None of the slopes are positive
II.	None of the lines are perpendicular
III.	The equation of line A is $x = 2$

A. I. only

B. II. only

C. III. only

D. I, II, and III are all false

E. None of the above

8. Which of the following equations is perpendicular to $2x - 3y = 7$.

A. $y = -\frac{3}{2}x + 3$

B. $y = \frac{3}{2}x + 2$

C. $y = \frac{2}{3}x + \frac{5}{3}$

D. $y = -\frac{2}{3}x - \frac{2}{3}$

E. None of the above

9. If $f(x) = \sqrt{2-3x}$ and $g(x) = \frac{1}{x^2+4}$, which of the following statements is/are true?

I.	The domain of f is $\left(-\infty, \frac{2}{3}\right]$
II.	The domain of g is all real numbers
III.	$f(0) = 2$

A. II only

B. I and II only

C. II and III only

D. All of the statements are true

E. None of the statements are true

10. Given the function $f(x) = 1 - x^2$, find and simplify $\frac{f(a+h)-f(a)}{h}$. (assume $h \neq 0$)

A. $-h$

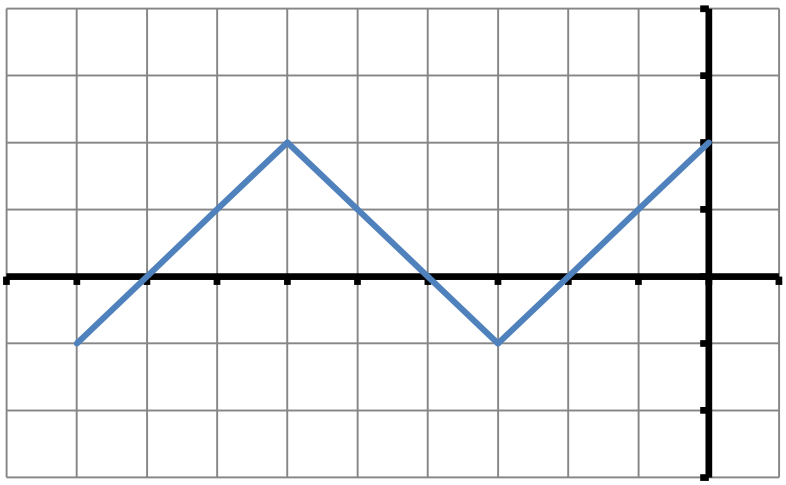
B. $-2ah - h$

C. $-2a - h$

D. $-2a^2 - 2a - h$

E. None of the above

11. Given the graph of the function f, find all values of x such that $f(x) > 0$. (each tick mark represents 1 unit)



A. $[-9,-8) \cup (-4,-2)$

B. $(-8,-4) \cup (-2,0]$

C. $(-8,0) \cup (-4,0) \cup (-2,0) \cup (0,2)$

D. The function is never positive

E. None of the above

12. Temperature readings on the Fahrenheit and Celsius scales are related by the formula $C = \frac{5}{9}(F - 32)$. Determine when the temperature reading on the Celsius scale is twice the temperature reading on the Fahrenheit scale.

A. When the Celsius reading is less than $-100°$

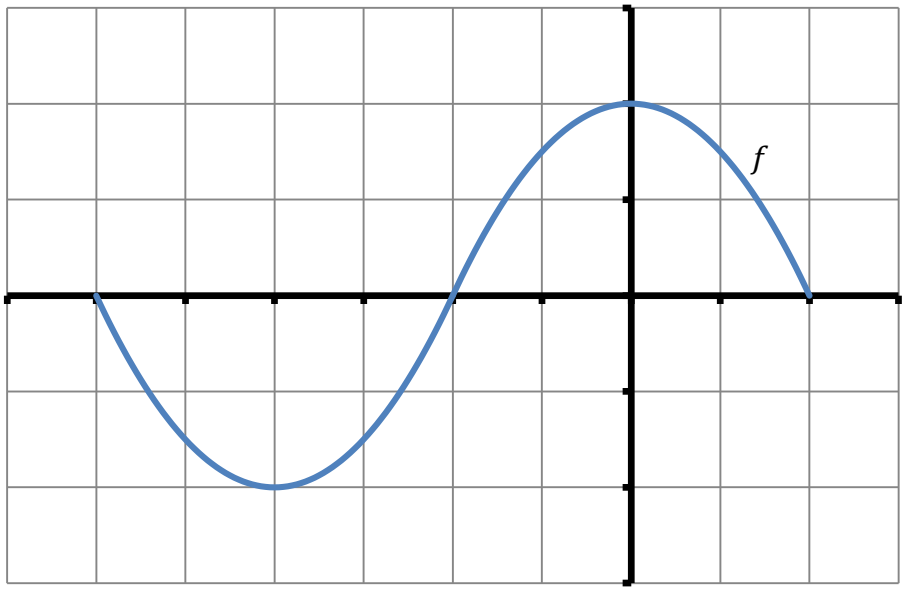
B. When the Celsius reading is between $-100°$ and $0°$

C. When the Celsius reading is between $0°$ and $100°$

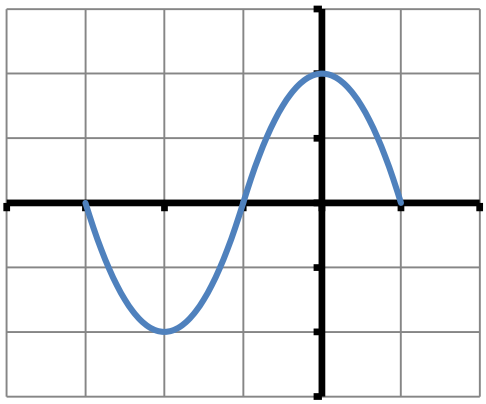
D. When the Celsius reading is between $100°$ and $200°$

E. When the Celsius reading is greater than $200°$

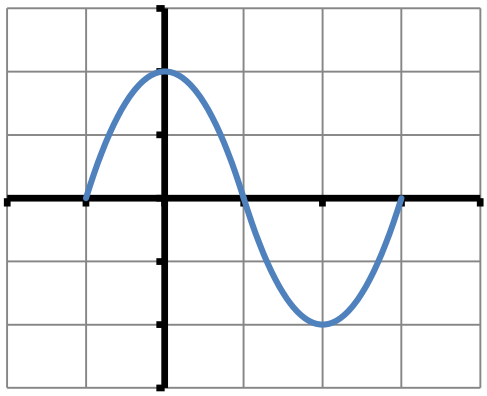
13. Given below is the graph of a function f. Which of the following graphs represents the transformation $y = f(-2x)$?



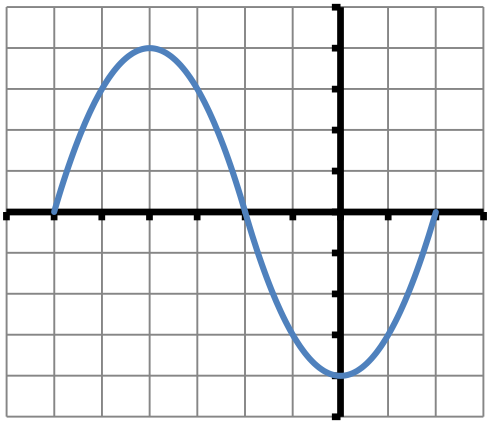
A.



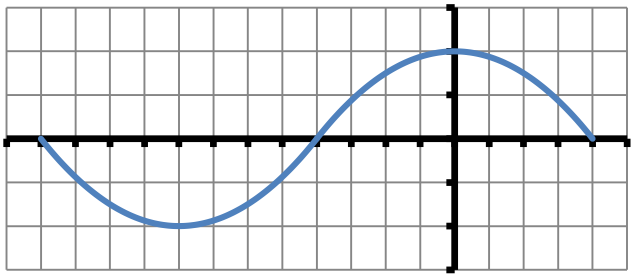
B.



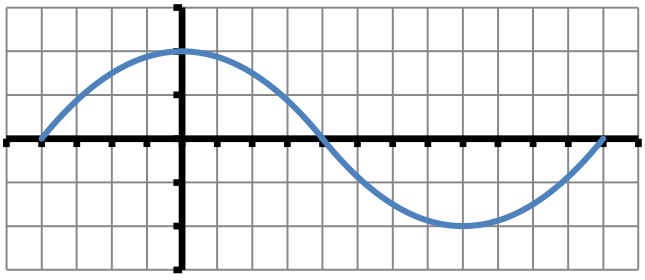
C.



D.



E.



14. Let $y = f(x)$ be a function with domain $D = [-8, 7]$ and range $R = [-9, 12]$. Find the range of the function $y = -f(x - 3) - 2$.

A. $[-14, 7]$
B. $[-11, 4]$
C. $[-10,11]$
D. $[-9, 6]$
E. $[-5,10]$

15. The point $P(5, -3)$ is on the graph of a basic function, $y = f(x)$. Find the corresponding point on the graph of $y = 4f\left(-\frac{1}{3}x\right) - 2$.

A. $\left(-\frac{5}{3}, -14\right)$
B. $\left(-\frac{5}{3}, -20\right)$
C. $(-15, -14)$
D. $(-15, -20)$
E. None of the above