MATH 150
Sample Exam 1

Created Summer 2003
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1. Simplify $(3 - i) / (-9 + 3i)$.
   a. -1
   b. -3
   c. 3
   d. $i - 3$
   e. none of the above

2. Simplify $i^{45} * i^{122} * i^{321}$.
   a. i
   b. -1
   c. $-i$
   d. 1
   e. none of the above

3. What is the center of the following circle: $2x^2 + 2y^2 + 12x - 16y + 18$
   a. (3, 4)
   b. (-3, 4)
   c. (-6, 8)
   d. (6, 8)
   e. none of the above

4. The equation of the line through the points (-8, 6) and (2, 5) is:
   a. $5.2x - 0.1$
   b. $-0.1x - 5.2$
   c. $-0.1x + 5.2$
   d. $5.8x + 0.1$
   e. $0.1x + 5.8$

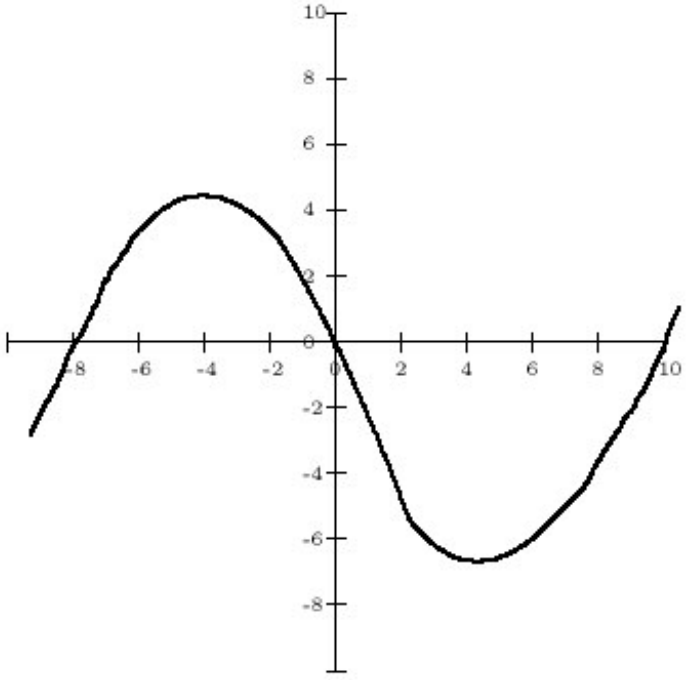
5. Which of the following is a Y-intercept of: $2x^2 - 5x - 12$?
   a. -12
   b. -4
   c. $-3/2$
   d. $3/2$
   e. none of the above

6. Which of the following is an X-intercept of: $2x^2 - 5x - 12$?
   a. -12
   b. -4
   c. $-3/2$
   d. $3/2$
   e. none of the above

7. Solve $|x/3 - 4/5| \geq 2/3$

a. [2/5, 22/5]
b. [1/3, 9/7]
c. $(-\infty, 1/3] \cup [9/7, +\infty)$
d. $(-\infty, 2/5] \cup [22/5, +\infty)$
e. none of the above

8. One interval on which the below graph of f(x) is always increasing is:



a. (-4, 4)
b. (-8, 0)
c. (0, 10)
d. (-8, -4)
e. (-4, 0)

9. What type(s) of symmetry does the following equation have, $3x^7 - 6x^5 + 4x^3 + 5x$?

a. origin symmetry
b. y-axis symmetry
c. x-axis symmetry
d. both a and b
e. both b and c

10. A 21 ft by 21 ft square swimming pool is surrounded by a path of uniform width. If the area of the path is 184 sq ft, find the width of the path.

11. Find ALL (including complex) solutions to: $(3x^2 - 5)^2 = 49$.
Hint: What squared is 49?