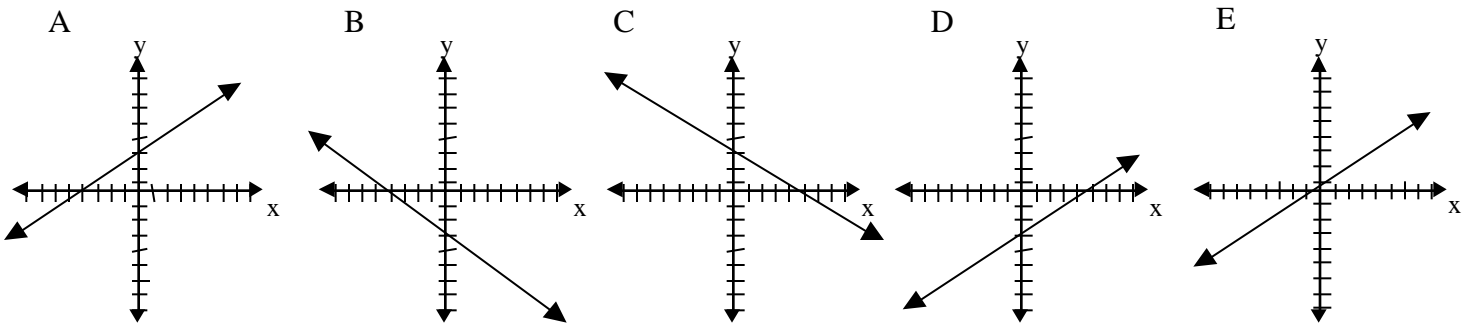# MA 111   Exam 2   Fall 1999

Name: _____

Circle the correct answer to problems 1-3. <u>You must show work to receive credit.</u>

(6 pts)
1. Which of the following most closely resembles the graph of $2x + 3y = 9$?

A   B   C   D   E

(6 pts)
2. If $f(x) = 4x + 2$ and $g(x) = x^2 - 6$, find $(f - g)(5)$

A. 3

B. 53

C. -9

D. 41

E. -41

(6 pts)
3. Find the slope of the line containing $(7, -2)$ and $(3,4)$

A. $m = \dfrac{2}{3}$

B. $m = -\dfrac{2}{3}$

C. $m = 0$

D. $m = -\dfrac{3}{2}$

E. slope is undefined

1

Name: _____

Place your answers in the space provided. <u>You must show your work to receive credit.</u>

(10 pts)

4. Write an equation of the line through the point (0, 3) and perpendicular to the line $3x - y = 7$

(12 pts)5. Multiply and simplify your answer.

(6 pts)

  a. $(y + 2)(y^2 - 5y + 10)$

(6 pts)

    b. $(x - 7)^2$

(10 pts)

6. If $f(x) = \dfrac{3}{x + 3}$ and $g(x) = \dfrac{4}{x - 4}$, find the domain of $(f \cdot g)(x)$

2

Name: _____

Place your answers in the space provided. <u>You must show your work to receive credit</u>.

(12 pts)

7. Factor completely.

(6 pts)
a. $3x^3y - 27xy$

┌─────────────────────────────┐
│   │
│   │
│   │
└─────────────────────────────┘

(6 pts)
b. $7x^2 + 35x - 98$

┌─────────────────────────────┐
│   │
│   │
│   │
└─────────────────────────────┘

(14 pts)

8. In 1940 the record for the shot put (a track and field event) was 42 feet. In 1960, it was 49.5 feet. Let R represent the record in the shot put in feet and t the number of years since 1940.

(8 pts)
a.   Find a linear function R(t) that fits the data. Use proper notation.

┌─────────────────────────────┐
│   │
│   │
│   │
└─────────────────────────────┘

(6 pts)
b.   Use this function to predict the shot put record in 1999.

Shot put record
in 1999 =
┌─────────────────────────────┐
│   │
│   │
│   │
└─────────────────────────────┘

Name: _____

(12 pts)   Place your answers in the space provided. <u>You must show your work to receive credit</u>.

9. President Beering's boat took 6 hours to travel with the current and 10 hours to travel the same distance against the current. The current is 5 miles per hour. (Name a variable(s), set up an equation and solve.)

(6 pts)
a.   Find the speed of President Beering's boat in still water.

Speed =
☐

(6 pts) b.   Find the TOTAL distance he traveled in the boat.

Total distance
Traveled =
☐

(12 pts)

10. How much of a 30% saline solution is to be mixed with a 45% saline solution to get 300 liters of 41% saline solution? (Name a variable(s), set up an equation and solve.)

Amount of 30%
Saline solution =
☐