**Study Guide for Final Examination**

MATH 1111

1. Solve the equation .

2. Solve the equation .

3. Solve the inequality .

4. Solve the inequality .

5. Solve the inequality .

6. Determine if the following are symmetric with respect to the -axis, -axis, or origin.

 (a) (b)

 (c) (d)

 (e)

7. Find the - and -intercepts of .

8. Find an equation for the line containing the points and .

9. Find the center and radius of the circle .

10. Find an equation of the line which is perpendicular to and contains the point .

11. If , find .

12. Determine whether the point is on the graph of .

13. Find the domain of .

14. Determine which of the following are polynomials. For those that are, state the degree. For those that are not, state why.

 (a)

 (b)

 (c)

 (d)

15. Assume that the graphs in the figure below are those of polynomials. What is the *least* possible degree of each polynomial?



16. Use the Factor Theorem to determine if the following are factors of

 .

 (a) (b)

 (c) (d)
(e) (f)

17. Solve the following system of equations.

18. Solve the following system of equations.

19. Simplify the following.

 (a) (b)

20. If , then

 (a) express it in terms of a logarithm base 3,

 (b) express it in terms of common logarithms,

 (c) express it in terms of natural logarithms, and

 (d) solve the equation.

21. Compute for the following functions.

 (a) (b)

22. (a) Write the following as a single logarithm.

 (b) Express the following as the sum and/or difference of logarithms. Write powers as factors.

23. Solve algebraically:

24. Solve for :

25. If $1,200 is invested for 9 years at an annual percentage rate (APR) of 2.3%, determine the amount of money when it is compounded

 (a) semiannually (b) monthly

 (c) daily (d) continuously

**Answers**

1. −3

2.

3.

4.

5.

6. (a) -axis (b) -axis

 (c) -axis, -axis, origin (d) origin

 (e) none

7. -intercept: ; -intercept:

8.

9. Center: ; radius: 6

10.

11. −30

12. Yes, since .

13.

14. (a) No, because there as an under a radical.

 (b) Yes, degree 7. (c) Yes, degree 4.

 (d) No, because there is an in the denominator of a fraction.

15. Degrees 5, 1, 3, 4, and 2 (in order).

16. (a) no (b) no

 (c) yes (d) yes

 (e) no (f) yes

17.

18.

19. (a) (b)

20. (a) (b)

 (c) (d)

21. (a)

 (b)

22. (a) (b)

23.

24.

25. (a) $1474.24 (b) $1,475.69

 (c) $1,475.97 (d) $1,475.98