Math 4
Exam 1
January 20, 1999

Name _____ Instructor _____
Class Time _____

Show your work.

1. Solve for $t$ (Answer must be in simplest fractional form.)

(8) $H = \dfrac{K(t - p)}{L}$

$f$ = _____

2. Solve for $x$ by factoring (Show work for credit.)

(9) $2x^2 = 19x + 33$

$x$ = _____

3. Solve by completing the square. (Show work.) Answer must be in simplest radical form or simplest $a + bi$ form)

(10) $9x^2 - 18x + 3 = 0$

$x =$ _____

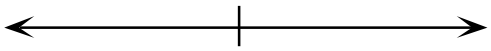
4. Solve by quadratic formula (Answer must be in simplest radical form, simplest $a + bi$ form, or simplest fractional form.)

(7) $3x^2 - 2x + 5 = 0$

$x =$ _____

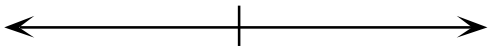
5. Solve the following inequalities. Graph the solution and write your answer using interval notation.

(6) a. $3x + 1 \geq 2$



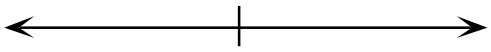
Interval _____

(6) b. $|x - 7| < 6$



Interval _____

(6) c. $\frac{x+6}{x+1} < 2$



Interval _____

6. Perform the operation and write the result in standard $(a+bi)$ form

(6) $\frac{2i}{2+i} + \frac{5}{2-i}$

Std. Form _____

7. Find **all** solutions of the equation.

(6) $x^6 + 7x^3 - 8 = 0$

$s$ = _____

8. Find **all** solutions of the equation.

(8) $\sqrt{3x-2} + x = 4$

$x$ = _____

9. (8) You plan to invest \$12,000 in two funds paying $7\frac{1}{2}\%$ and 10% simple interest. (There is more risk in the 10% fund). Your goal is to obtain a total annual interest income of \$1,000 from the investments. What is the smallest amount you can invest in the 10% fund in order to met your objective?

10. (8) Find the standard form of the equation of the specified circle: Endpoints of diameter are (-4,-3), (0,-3).

In exercises 11-16 match the equation with its graph. Place the correct letter in the blank. [The graphs are labeled (a), (b), (c), (d), (e), and (f).] (2 pts ea)

11. $y = 1 - x$ _____

12. $y = x^2 - 2x$ _____

13. $y = \sqrt{9 - x^2}$ _____

14. $y = 2\sqrt{x}$ _____

15. $y = x^3 - x + 1$ _____

16. $y = |x| - 3$ _____