Math 4 Exam 1 September 3, 1997

Name			

Instructor ______Class Time _____

Show your work.

1. Solve for x

(4) a)
$$\frac{1}{x-2} + \frac{3}{x+3} = \frac{4}{x^2 + x - 6}$$

(4) b)
$$|x-10| = x^2 - 10x$$

2. Solve for *r* (Answer must be in simplest fractional form.)

$$(8) S = \frac{rL - a}{r - 1}$$

3. Solve for *x* by factoring (Show work for credit.)

(8)
$$x^2 + 9 = 10x$$

$$x =$$

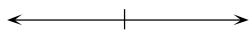
4. Solve by completing the square. (Show work.) Answer must be in simplest radical form or simplest a + bi form)

$$(8) 4x^2 - 4x - 99 = 0$$

- 5. Solve by quadratic formula (Answer must be in simplest radical form, simplest a + bi form, or simplest fractional form.)
- (6) $5x^2 + 6x + 3 = 0$

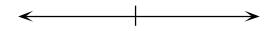
v	_					
л	_					

- 6. Solve the following inequalities. Graph the solution and write your answer using interval notation.
- (5) a. $6x 4 \le 2$



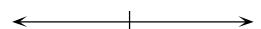
Interval _____

(5) b.
$$1 < 2x + 3 < 9$$



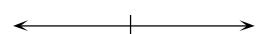
Interval _____

(5) c.
$$|x-4| > 2$$



Interval _____

(5) d.
$$\frac{x+12}{x+2} \ge 3$$



Interval

- 7. Perform the operation and write the result in standard (a + bi) form
- (5) $\frac{(2-3i)(5i)}{2+3i}$

Std. Form

8. Solve for x.

$$(5) x^4 + 2x^3 - 8x - 16 = 0$$

x = _____

9. Solve for x.

$$\sqrt{2x+7} - x = 2$$

x = ____

- You commute 56 miles one way to work. The trip to work takes 10 minutes longer than the trip home. 10.
- Your average speed on the trip home is 8 miles per hour faster. What is your average speed on the trip (7) home?
- Find the standard form of the equation of the specified circle: endpoints of a diameter are (-4,-1), (4,1). 11.

(6)

In exercises 12-17 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)

12.
$$y = 1 - x$$

13.
$$y = x^2 - 2x$$

12.
$$y = 1 - x$$

14. $y = \sqrt{9 - x^2}$
16. $y = x^3 - x + 1$

15.
$$y = 2\sqrt{x}$$

17. $y = |x| - 3$

16.
$$y = x^3 - x + 1$$

17.
$$y = |x| - 3$$
