

Name: \_\_\_\_\_

Circle your answer for problems 1-3. You must show correct work to receive credit.

(8 pts) 1. Find the distance between the points (2,3) and (-4,1). Simplify your answer.

- A. 8
- B.  $\sqrt{10}$
- C. 6
- D.  $\sqrt{5}$
- E. None of the above

(8 pts) 2. Solve the following inequality.

$$\frac{2}{9}x - \frac{4}{3} > \frac{5}{6}x - 1$$

- A.  $x > -\frac{6}{11}$
- B.  $x > -\frac{11}{6}$
- C.  $x < -\frac{6}{11}$
- D.  $x < -\frac{11}{6}$
- E. None of the above

(8 pts) 3. Subtract and simplify completely.

$$\frac{7}{2a-1} - \frac{3}{a}$$

Name: \_\_\_\_\_

A.  $\frac{a+3}{a(2a-1)}$

B.  $\frac{4}{a-1}$

C.  $\frac{a-1}{a(2a-1)}$

D.  $\frac{4}{2a-1}$

E.  $\frac{a-3}{a(2a-1)}$

Place your answer in the spaces provided. You must show your work to receive credit.

- (10 pts) 4. The value of Joe's card collection is \$50 more than three times the value of Rick's collection. If the combined value is \$3700, what is the value of each person's collection? (Name the variable(s), set up an equation(s), and solve.) **There is no credit for guessing.**

value of Joe's =

value of Rick's =

- (8 pts) 5. Multiply and simplify completely.

$$\frac{x+3}{x^2-5x} \cdot \frac{2x^3-x^2}{2x^2+5x-3}$$

Name: \_\_\_\_\_

(10 pts) 6. Find the center and the radius of the circle given by the following equation. Hint: standard equation of a circle is  $(x - h)^2 + (y - k)^2 = r^2$ .

$$x^2 + y^2 + 10x - 14y - 7 = 0$$

Center:

Radius =

Place your answer in the spaces provided. You must show your work to receive credit.

(16 pts) 7. Solve for  $x$ . Simplify your answer(s) completely. (Do not use decimals.)

(8 pts) (a)  $(x - 3)^2 = 16$

 $x =$ 

(8 pts) (b)  $2x^2 - 6x + 3 = 0$

Name: \_\_\_\_\_

(10 pts) 8. Solve the following system of equations:

$$3a - 4b = 4$$

$$a - 6b = -1$$

$a =$    
 $b =$

Place your answer in the spaces provided. You must show your work to receive credit.

(12 pts) 9. Sean has \$70,000 to invest for one year. Part of the money will be invested in certificates of deposits (CD's) which pay 8% simple interest. The remaining amount will be invested in noninsured bonds paying 12% simple interest. How much should he invest in each in order to earn \$6300 for one year in total interest? (Name the variable(s), set up an equation(s), and solve.)

amount in CD's =

amount in bonds =

(10 pts) 10. The sidewalk around a rectangular garden is 4 feet wide and has an area of 574 square feet. If the length of the garden is twice the width, find the width of the garden. (Label

Name: \_\_\_\_\_

