

Name: _____

Student ID: _____

Instructor: _____

Class Hour: _____

INSTRUCTIONS:

- (1) **There is no credit for guessing. You must show your work to receive credit!**
- (2) Please fill in all the above information and write your name on the top of each of the 4 exam pages.
- (3) The point value on each problem appears to the left of the problem.
- (4) You must show sufficient work to justify all answers. Correct answers with inconsistent work may not be given credit.
- (5) No partial credit will be given on problems 1-3. Partial credit may be obtained on problems 4-9 provided sufficient work is shown.
- (6) Circle the letter of the correct answer in problems 1-3, and write the answers to problems 4-9 in the space provided.
- (7) No books or paper are allowed. Calculators may be used where appropriate.
- (8) The exam is self-explanatory. Please do not ask the instructor to interpret any of the exam questions.

Page	Points	Max Possible
1		24
2		26
3		30
4		20
Total		100

Name: _____

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

(8 pts) 1. Solve the following system for x:

$$\begin{cases} 2x - 5y = 25 \\ 3x + 2y = 9 \end{cases}$$

- A. $x = 2$
- B. $x = 5$
- C. $x = 3$
- D. $x = -3$
- E. None of the above

(8 pts.) 2. Simplify.

$$\frac{18 + \sqrt{72}}{6}$$

- A. $18 + 6\sqrt{2}$
- B. $3 + 6\sqrt{2}$
- C. $18 + \sqrt{2}$
- D. $3 + \sqrt{2}$
- E. $3 + 36\sqrt{2}$

(8 pts.) 3. It takes Bill 20 hours to paint a house working alone.
When Bill and Ted work together, it takes 12 hours.
How long does it take Ted to paint a house working alone?

- A. 8 hours
- B. 18 hours
- C. 7.5 hours
- D. 30 hours
- E. 32 hours

Name: _____

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

(16 pts.) 4. Solve each of the following equations for x. Simplify your answer.

(8 pts.) a.
$$\frac{8}{3x+2} - \frac{3x}{3x^2-19x-14} = \frac{15}{x-7}$$

x =

(8 pts.) b.
$$\frac{2}{5}x - 3 = \frac{1}{3}x + 2$$

x =

(10 pts.) 5. Solve the equation for x. Check your answer(s).

$$\frac{8x+5}{3x-2} = \frac{31}{9x-6}$$

Name: _____

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

(18 pts.) 6. Find all the solutions of the following equations. Simplify your answers completely.

(6 pts.) a. $(5x + 7)^2 = 64$

x =

(6 pts.) b. $3x^2 + 9x - 30 = 0$

x =

(6 pts.) c. $5x^2 - 5x - 1 = 0$

x =

(12 pts.) 7. Find the dimensions of the rectangle whose perimeter is 26 meters and whose area is 40 meters squared. Name the variables, set up the equations and solve.

dimensions: by

Name: _____

Name: _____

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

- (10 pts.) 8. An airplane, flying with a wind of 45 miles per hour, took 4 hours to travel from A to B. The airplane took 4 hours and 30 minutes, against the same wind, to travel from B to A. What is the plane's airspeed (speed in still air)? Name a variable, set up an equation and solve.

Plane's
Airspeed =

- (10 pts.) 9. How much of a 32% brine solution should be added to 22 liters of a 50% brine solution to obtain a 37 % solution? Name a variable, set up an equation and solve.

Amount of
32% solution =