College Algebra
Fall 2022
Exam One
9/26/2022
Time Limit: 80 Minutes

Your Name: _____

Instructor: _____

This exam contains 6 pages (including this cover page) and 8 problems. Check to see if any pages are missing. Enter all requested information on the top of this page, and put your initials on the top of every page, in case the pages become separated.

You may *not* use your books, notes, or **any calculator** on this exam.

You are encouraged to show your work on each problem on this exam. The following rules apply:

- **Organize your work**, in a reasonably neat and coherent way, in the space provided. Work scattered all over the page without a clear ordering will receive very little credit.
- **Box your final answer** and label the solution with the appropriate variables (if applicable).
- **Simplify your final answer**. A correct answer, written in an unsimplified way, will receive less than full credit. All fractions must be written such that the numerator and denominator share no common factors.
- If you need more space, use the back of the pages; clearly indicate when you have done this.

Do not write in the table to the right.

Problem	Points	Score
1	5	
2	6	
3	4	
4	25	
5	20	
6	15	
7	5	
8	30	
Total:	110	

1. (5 points) Write your name and the name of the instructor on page one.

2. Write as a product of primes:

   (a) (2 points)

   $$32$$

   (b) (2 points)

   $$105$$

   (c) (2 points)

   $$121$$

3. Write each fraction as a percentage:

   (a) (2 points)

   $$\frac{2}{5}$$

   (b) (2 points)

   $$\frac{1}{10}$$

4. Solve:

(a) (5 points)

$$5x - 3 = 22$$

(b) (5 points)

$$\frac{3}{5} = \frac{12}{10}x$$

(c) (5 points)

$$\frac{7}{n-2} - \frac{4}{n+3} = 0$$

(d) (5 points)

$$\frac{2}{5}x - \frac{1}{2}x = \frac{7}{10}$$

(e) (5 points)

$$7(x-4) = 4(x+3)$$

5. Solve for the specified variable:

   (a) (5 points)

$$F = \frac{9}{5}C + 32, \quad \text{for } C$$

   (b) (5 points)

$$y = mx + b, \quad \text{for } m$$

   (c) (5 points)

$$A = 2\pi r^2 + 2\pi rh, \quad \text{for } h$$

   (d) (5 points)

$$I = Prt, \quad \text{for } t$$

6. Solve the inequalities

   (a) (5 points)

$$\frac{2n}{5} - \frac{n}{4} < \frac{3}{10}$$

   (b) (5 points)

$$-2x - 5 < 3$$

   (c) (5 points)

$$2(x+3) + 3(x-6) < 14$$

7. (5 points) Pick one of the inequalities from the previous problem.

   (a) Write the Solution Set

   (b) Draw the Line Graph

   (c) Write the solution in Interval Notation

8. (30 points) Set up and solve the following word problems:

   (a) Siri is half as old as Vasher. Ten years ago Vasher was triple Siri's age. How old are Siri and Vasher now?

   (b) A triangular plot of ground has a perimeter of 54 yards. The longest side is twice the shortest side, and the third side is 2 yards longer than the second side. Find the lengths of the sides of the triangle.

   (c) Albert has won 45 tennis games and lost 55 games. They have 62 more games to play. To win more than 50% of all their games, how many of the 62 games remaining must they win?