

Perform your work on separate paper as needed. Work must be clearly **legible**. Answers should be, **simplified** and **boxed** or **circled** and written on **THIS** page. Unless otherwise stated write answers as an exact integer, fraction where possible. Check your answers where possible.

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1) Solve for x:

$$\frac{3-x}{3} + 3\frac{1}{2} = 5 - \frac{3(2x-5)}{2}$$

2) Solve for y:

$$\frac{2y}{5} - \frac{3x+1}{3} = 40 - 4 \cdot \frac{5-y}{3}$$

3) Solve for y:

$$\frac{2y+3x}{x-1} = y+1$$

4) Solve for R

$$5R + 12 = KR + Rr + 2r^2$$

5) Find the equation of the line (SI form) through (15, -7) and (-3, 5).

6) Find the equation of the line through (9, -5) and parallel to  $6x - 9y = 108$ . Simplify to Standard form.

7-10 Depend upon the following information.

A random group of drivers are polled and asked how the rising gas prices have affected their weekly gasoline purchases. That information is recorded and given below.

|           |        |        |        |        |        |
|-----------|--------|--------|--------|--------|--------|
| Gas Price | \$2.00 | \$2.50 | \$3.00 | \$3.50 | \$4.00 |
| Avg Use   | 17.3   | 16.5   | 15.2   | 13.6   | 12.6   |

7a) Determine the independent vs. dependent variable.

7b) Enter the data into your calculator (usually  $L_1$  &  $L_2$ )

7c) Set up and plot the data in a friendly window. Write your Friendly Window here:

[ \_\_\_\_\_, \_\_\_\_\_ ] × [ \_\_\_\_\_, \_\_\_\_\_ ]

|     |     |
|-----|-----|
| x = | y = |
|     |     |

8) The data should appear linear. Run Linear Regression on your data and give the model here:

9a) Now that we have the model, we can use it to answer a variety of questions. At what price does the model predict that folks will quit buying gas?

9b) According to the model, what purchase level is predicted at a price or \$5.00?

10a) According to the model, at what price will the purchase level drop to 10 gal/wk?

10b) According to the model, how much gas would be used per week if gas were free.

Is this model realistic for all  $y \geq 0$  cases? Why/why not?