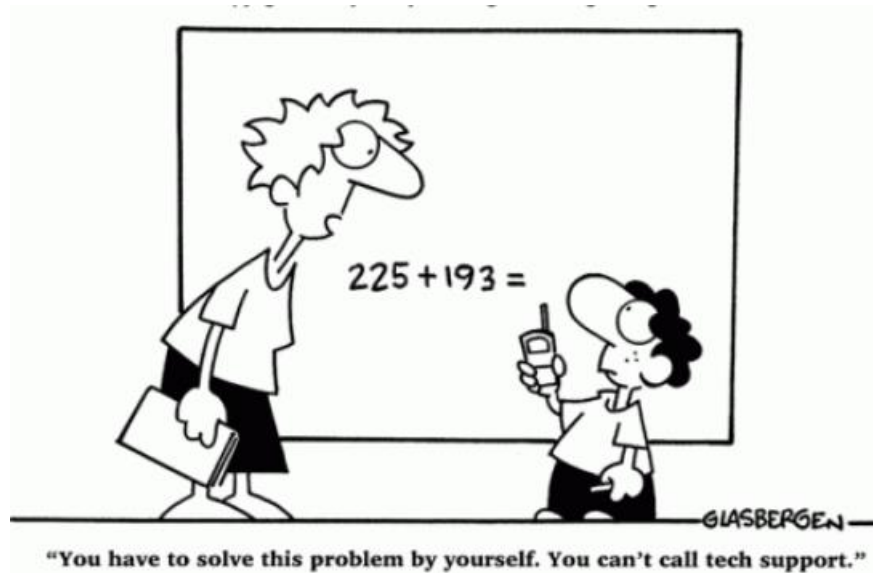


*424 – Financial Algebra
Summer Prep Review*



Name: _____

Complete the practice questions Show all of your work.

I. Quadratics/Polynomials

Directions - Factor completely each of the following:

1] $4x^2 + 27x + 35$

2] $-28y^2 + 7t^2$

3] $x^3 - 2x^2 - 9x + 18$

4] $8a^4 + 27ab^3$

Directions - Solve each of the following:

5] $-3x^2 - 5x + 12 = 0$

6] $3x^2 + 5x = 6$

7] $x^2 + 2x + 3 = 0$

8] $225 - b^2 = 0$

II. Rational Expressions:

Directions - Simplify to a single fraction or expression:

9] $\frac{1}{ab} - \frac{2}{b^2}$

10] $\frac{x^2 + 6x + 8}{x^2 - 4}$

III. Solving Rational & Radical Equations Solve the equations below and check for extraneous solutions.

11]
$$\frac{10}{x+4} = \frac{15}{4x+4}$$

12]
$$\frac{10}{x^2-2x} + \frac{4}{x} = \frac{5}{x-2}$$

13]
$$\sqrt{11x+3} - 2x = 0$$

14]
$$\sqrt{10x} - 2\sqrt{5x-25} = 0$$

IV. Systems of Linear Equations

Solve the following systems of equations using any method. Show all of your work, clearly mark your answers and check your solutions.

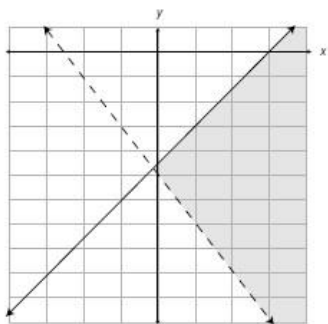
15]
$$\begin{cases} 2x - 3y = -9 \\ -x + 3y = 6 \end{cases}$$

16]
$$\begin{cases} 2x - 3y = 6 \\ x - y = 5 \end{cases}$$

17]
$$\begin{cases} x - 3y + 3z = -4 \\ 2x + 3y - z = 15 \\ 4x - 3y - z = 19 \end{cases}$$

18]
$$\begin{cases} 4x + 2y + 3z = 1 \\ 2x - 3y + 5z = -14 \\ 6x - y + 4z = -1 \end{cases}$$

- 19] Write the equations for the system of inequalities graphed below.



- 20] At a baseball game Sam bought 2 hamburgers and 1 order of French fries for a total of \$3.75. Erica bought 1 hamburger and 2 orders of French fries for a total of \$3.00. What is the price of one hamburger?

- 21] The marketing department of a company has a budget of \$30,000 for advertising. A television ad costs \$1000, a radio ad costs \$200, and a newspaper ad costs \$500. The department wants to run 60 ads per month and have as many radio ads as television and newspaper ads combined. How many of each type of ad should the department run each month?

V. Logarithms

Use rules of logarithms and exponents to simply and/or solve the following:

Given $\log_b a = x$ if and only if $b^x = a$, where $b > 0$, but $b \neq 1$ and $a > 0$

22] $3\log_2 x = 12$

23] $\log_5 125 = x$

24] $3 + 4\log_x 4 = 5$

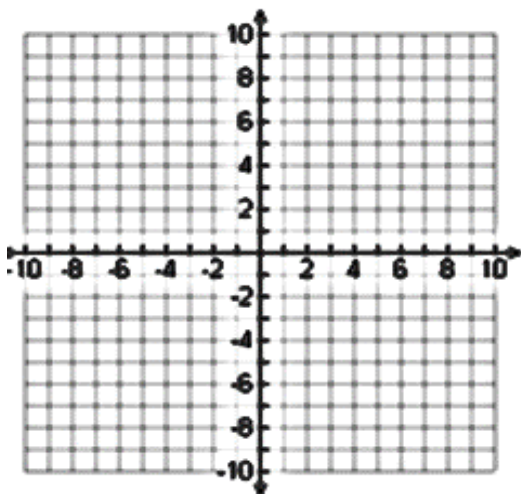
25] $\frac{3}{2}\log_{27}(x+5) = 1$

VI. Linear and Quadratic Functions

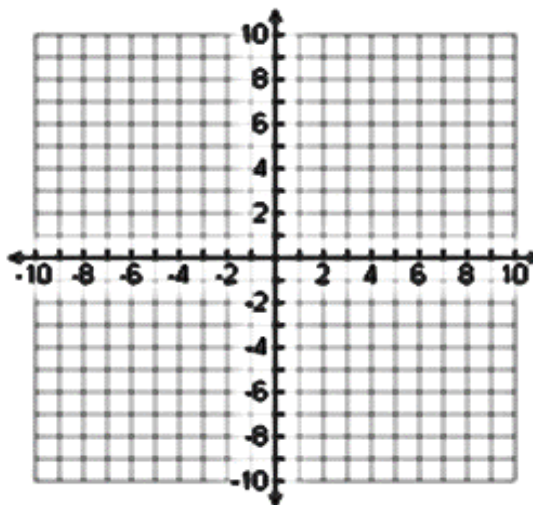
26) Write an equation of a line with slope 3 and y-intercept 5.

27) Use point-slope form of a linear equation to find an equation of the line passing through the point (6, 5) with a slope of $2/3$.

28a) Find an equation of a line passing through the points (-3, 6) and (1, 2).
Graph it below.



28b) Find an equation of a line with an x-intercept of (2, 0) and a y-intercept of (0, 3).
Graph it below.



29) Solve the inequality: $x^2 - x - 12 > 0$.

30) Find an equation for the parabola whose vertex is (2, -5) and passes through (4, 7). Express your answer in the vertex form for a quadratic.