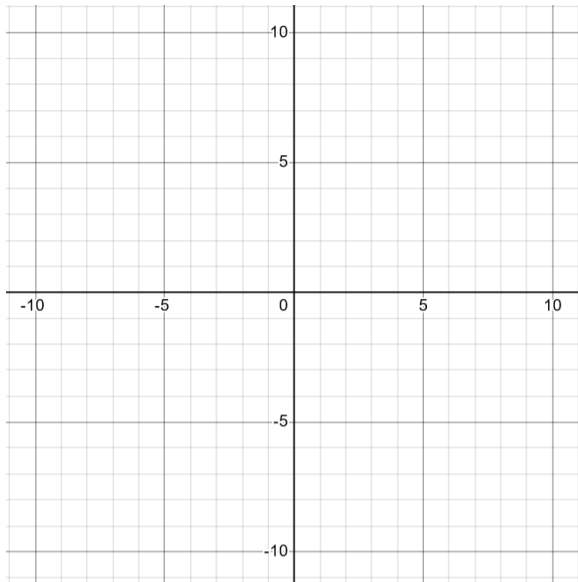


Instructions: This is a practice test. It is by no means comprehensive, as the test may include situations that practice test does not address. That being said, your WeBWorK and especially the final exam review should give you a good idea of what to expect on your tests. You should write all answers in simplest rational form. That means **NO DECIMAL SOLUTIONS**. Your test will be on Friday 2/24/2022.

1. Graph the following lines on the same set of axes given (You must label each line with its equation at least two points on each line for full credit.)
 - a. [4] $y = -\frac{3}{2}x - 2$
 - b. [4] $y = \frac{2}{3}(x - 5) + 10$
 - c. [2] By graphing, what is the intersection point of the two lines?



2. Given the following points, $(-3, 12)$ and $(8, -2)$.
 - a. [5] Find the slope between the two points.
 - b. [5] Find the equation of the line that passes through the two points in **slope-intercept form**.
 - c. [5] Write the equation of the **perpendicular** line that passes through $(-3, -1)$ in **point-slope form**.
3. [10] Solve the following system of linear equations by substitution. Leave answers in the form (x, y) .

$$\begin{aligned}4x - 3y &= 9 \\ y &= -2x + 17\end{aligned}$$

4. [15] Solve the following system of linear equations by elimination. Leave answers in the form (x, y, z) .

a.
$$\begin{aligned}x + 5y + 3z &= 25 \\-4x + 2y + z &= 27 \\2x + y - 3z &= -13\end{aligned}$$

b.
$$\begin{aligned}-4x + 4y + 4z &= 35 \\5x - 4y + 5z &= -45 \\5x - 2y - 3z &= -35\end{aligned}$$

5. [10] Factor completely. $4x^5 - 24x^4 - 16x^3 + 96x^2$

6. [10] Solve for x . $30x^7 + 5x^6 - 60x^5 = 0$

7. [10] Simplify completely. $\frac{w-5}{w-3} - \frac{3-5w}{w^2-9}$

8. [10] Simplify the expression.

$$\frac{x^2 + 10x + 16}{x^4} \div \frac{x^2 - 64}{x^2 - 2x}$$

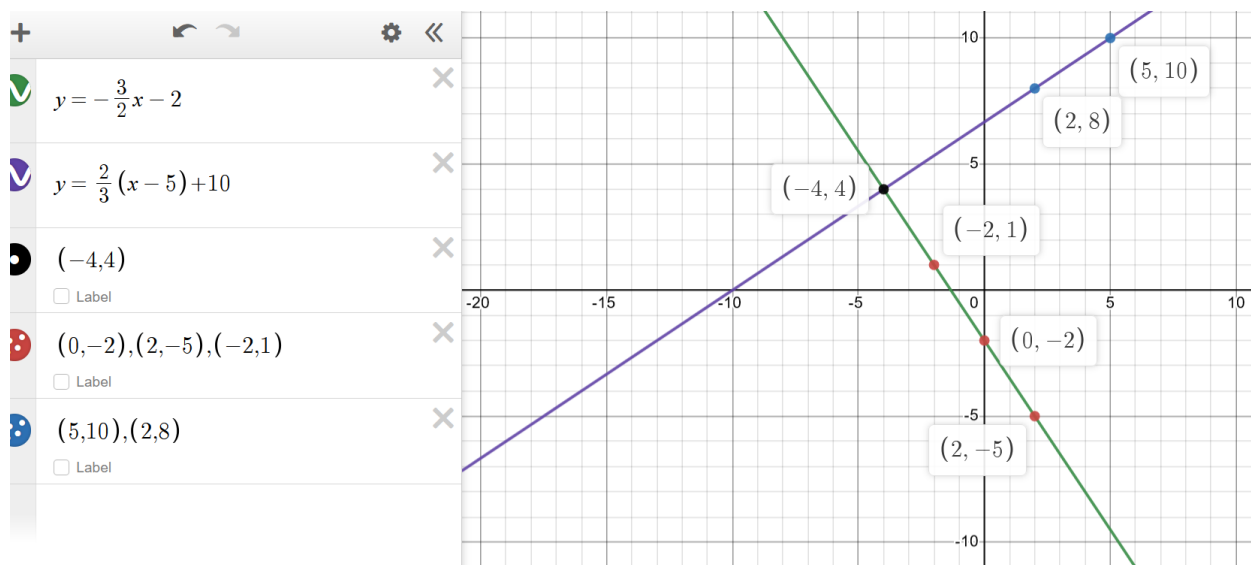
9. [10] Simplify the complex fraction completely.

$$\frac{\frac{9}{y^2} - \frac{5}{y}}{25 - \frac{81}{y^2}}$$

10. [10] Solve for x . Show all extraneous solutions.

$$\frac{24}{x^2 + 2x - 15} = \frac{x}{x - 3} - \frac{7}{x + 5}$$

Answer Key:



1.
 - A. Must show and label $(0, -2)$ and at least either $(2, -5)$ or $(-2, 1)$
 - B. Must show and label $(5, 10)$ and $(2, 8)$. Note: Do not convert to slope-intercept form. The y-intercept is not easy to graph (among other reasons)
 - C. Point of Intersection $(-4, 4)$
2.
 - A. Slope: $-\frac{14}{11}$
 - B. $y = -\frac{14}{11}x + \frac{90}{11}$
 - C. $y = \frac{11}{14}(x - (-3)) - 1$, $y = \frac{11}{14}(x + 3) - 1$,
 $y - (-1) = \frac{11}{14}(x - (-3))$, or $y + 1 = \frac{11}{14}(x + 3)$ is acceptable.
3. $(6, 5)$
4. A. $(-4, 4, 3)$ B. $(-5, 5, 0)$
5. $4x^2(x - 6)(x^2 - 4)$
6. $x = 0, -\frac{3}{2}, \frac{4}{3}$
7. $\frac{(x-2)^2}{x^3(x+8)}$
8. $-\frac{1}{5y+9}$
9. $x = -1, x = 3$ is an extraneous solution.