

Show all your work to receive full credit.

Problems 1-5 are worth 6 points each.

1. Is  $(-1, 3)$  a solution of  $2x + 3y = 7$ ?
2. Find the slope of the line joining the points  $(-2, 6)$  and  $(3, -2)$ .
3. Determine if  $(2, -4)$  is a solution to the the system of equations:

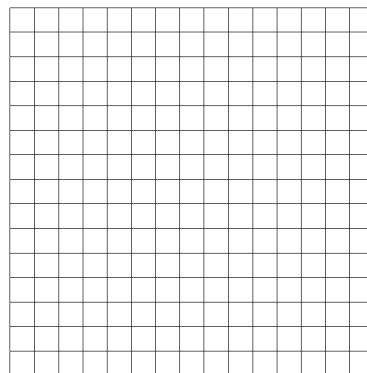
$$\begin{cases} \frac{1}{3}x - y = -1 \\ \frac{3}{4}x + \frac{1}{2}y = \frac{13}{4} \end{cases}$$

4. Simplify the expression  $(-5z^5)(3z^3)(2z^{-2})$
5. Evaluate  $(-6)^{-2}$ .

Problems 6-20 are worth 8 points each.

6. Write the equation of the line passing through the points  $(4, 5)$  and  $(2, -3)$  . Write the equation in slope-intercept form.
7. Write the equation of the line perpendicular to  $5x - 3y = -4$  that passes through the point  $(-5, 2)$ .
8. Graph  $x - 2y = -4$  by first finding the  $x$ - and  $y$ -intercepts of the equation. Label points.

$x$ -intercept: (            ,            )  
 $y$ -intercept: (            ,            )



9. Simplify using positive exponents:  $\frac{(2a^7b^{-8})^5}{2^3a^{-9}b^{-3}}$

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Perform the indicated operations and simplify.

10.  $(9m^2 - 8m - 13) - (m^2 - 8m - 24)$

11.  $-\frac{1}{3}x^2(3x^2 - 12x + 9)$

12.  $(5m + 4)(m^2 - 2m + 1)$

13.  $(2y + w)^2$

14.  $(5 - 2x)(5 + 2x)$

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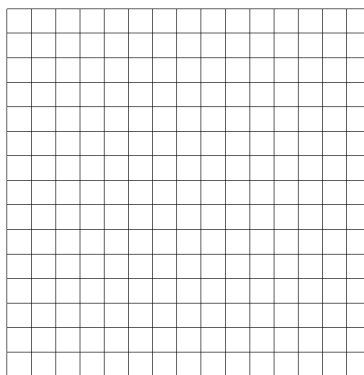
15. Divide and simplify:

$$\frac{32x^4 - 12x^3}{4x^3}$$

16. Simplify and write your answer in **scientific notation**:  $(8 \times 10^7)(1.5 \times 10^{-3})$

17. Find the solution to the system of linear equations by graphing. If there is no solution or infinitely many solutions state so.

$$\begin{aligned} -2x + y &= 3 \\ 4x - 2y &= 8 \end{aligned}$$



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18. Find the solution to the system of linear equations by **substitution**. If there is no solution or infinitely many solutions state so.

$$6x + 3y = -12$$

$$-3x + y = 1$$

19. Find the solution to the system of linear equations by **elimination**. If there is no solution or infinitely many solutions state so.

$$x + 2y = 2$$

$$3x - y = -22$$

20. Write a **system of linear equation** for the following. **Solve and label your answers.**

The sum of two numbers is 151, while the difference of the two numbers is 25. What are the two numbers?

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**EXTRA CREDIT. Each problem is worth 5 points.**

1. Write a **system of linear equations** for the following. **Solve and label your answers.**

There were 287 tickets sold for a basketball game. The activity cardholders' tickets cost \$0.50 and the non-cardholders' tickets cost \$0.55. The total amount of money collected was \$149.50. How many of each kind of ticket were sold?

2. Multiply and simplify:

$$(6m^2 + 10)(6m^2 - 10)$$

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