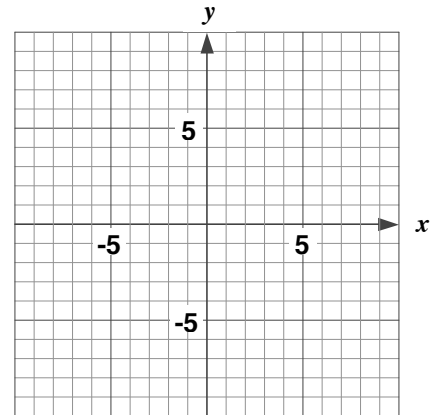


Instructions: Show all work and circle all answers. Remember to solve the word problems algebraically.

1. Solve by graphing
$$\begin{cases} 3x + 8y = -1 \\ x - 2y = -5 \end{cases}$$



2. Solve by the substitution method
$$\begin{cases} 9x + 12y = -1 \\ x - 4y = -1 \end{cases}$$

3. Solve by the addition method
$$\begin{cases} 8x - 3y = 11 \\ 6x - 5y = 11 \end{cases}$$

4. Solve by any method
$$\begin{cases} 8x - y = 25 \\ 32x - 4y = 100 \end{cases}$$

5. Solve by any method
$$\begin{cases} 3x - y = 4 \\ y = 3x + 2 \end{cases}$$

6. A plane flew 240 miles in 2 hours with the wind. On the return trip, against the wind, it took 3 hours. Find the rate of the plane in calm air and the rate of the wind.

7. One day the lunch order for a group of consisted of 4 turkey sandwiches and 7 orders of French fries, for a total cost of \$23.30. The next day, the employees ordered 5 turkey sandwiches and 5 orders of French fries totaling \$25.75. What is the price of a turkey sandwich?

Show all work in the space provided and circle all answers
Remember to solve the word problems algebraically.

8. (7.1 #27) Add $(5x^3 + 7x - 7) + (10x^2 - 8x + 3)$
9. (7.1 #39) Subtract $(4x^3 + 5x + 2) - (-x^2 + x - 3)$
10. (7.2 #23) Multiply $(a^2b^3)(ab^2c^4)$
11. (7.2 #57) Simplify $(a^2)(3a^2)^3$
12. (7.3 #21) Multiply $x^2(3x^4 - 3x^2 - 2)$
13. (7.3 #42) Multiply $(4y - 3)(3y^2 + 3y - 5)$
14. (7.3 #96) Multiply $(y - 3)^2$
15. (7.4 #21) Simplify $\frac{m^9n^7}{m^4n^5}$
16. (7.4 #63) Simplify $(2x^{-1})(x^{-3})$
17. (7.4 #75) Simplify $\frac{2x^{-1}y^{-4}}{4xy^2}$
18. (7.5 #21) Divide $\frac{3x^2 - 2x + 1}{x}$
19. (7.5 #33) Divide $(4x^2 - 16) \div (2x + 4)$
20. (8.1 #21) Factor $5a + 5$
21. (8.1 #81) Factor $x(a - 2b) - y(2b - a)$

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22. (8.1 #105) Factor $xy - 5y - 2x + 10$
23. (8.2 #21) Factor $y^2 + 6y - 55$
24. (8.2 #87) Factor $b^4 - 22b^3 + 120b^2$
25. (8.3 #21) Factor $2z^2 - 27z - 14$
26. (8.4 #21) Factor $x^6 - 9$
27. (8.4 #93) Factor $4a^3 + 20a^2 + 25a$
28. (8.5 #12) Solve $t(4t + 7) = 0$
29. (8.5 #39) Solve $3t^2 - 13t = -4$
30. (2 points each) Circle TRUE if the statement is always true, otherwise circle FALSE.

TRUE FALSE In the expression $(6x)^4$, x is the base and 4 is the exponent.

TRUE FALSE $5x^0 = 0$.

TRUE FALSE To factor a polynomial means to rewrite it as multiplication.

TRUE FALSE If you multiply two numbers and the product is zero, then either one or both of the numbers must be zero.

TRUE FALSE Graphically, the solution of an independent set of linear equations is the point of intersection of the two graphs of the two equations.

TRUE FALSE Suppose you are algebraically solving (by the addition or substitution method) a system of equations and get $5=5$. Then the system of equations is dependent and has no points of intersection.