

1. You buy 6 gallons of milk for \$15. What is the cost for 1 gallon of milk?

2. Evaluate $-5x^3 + 3x^2 - 8x + 2$ when $x = -2$.

3. Simplify $4(x - 3) - 5(2x + 1)$.

4. Solve the equation $4(3x - 1) = -3(2x + 8) - 7$.

5. You have two summer jobs. In the first job, you work 15 hours per week and earn \$5.80 per hour. In the second job, you earn \$6.50 per hour and can work as many hours as you want. You want to earn \$230 per week. How many hours must you work at the second job?

6. Solve $3 \leq 4x - 7 < 9$. Then graph the solution.



7. Solve $|9x - 3| = 42$.

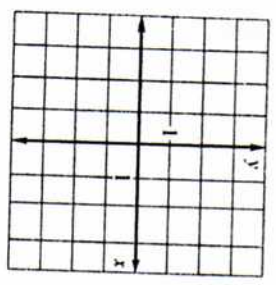
8. Given the set of points $(-3, 2)$, $(5, 1)$, $(-4, 8)$, $(3, 7)$, $(0, 6)$:

- a. Identify the domain and range of the relation.
- b. Is the relation also a function?

9. Find the slope of the line passing through the points $(7, 4)$ and $(-2, 6)$. Tell whether the line *rises*, *falls*, *is horizontal*, or *is vertical*.

10. Graph $y = -\frac{3}{4}x + 2$.

Identify the slope and y -intercept.



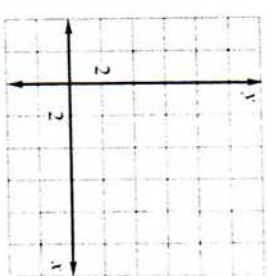
11. Find the x - and y -intercepts of the line with equation $5x - 4y = -10$.

12. Write the equation of the line passing through the points $(-2, 5)$ and $(4, 9)$.

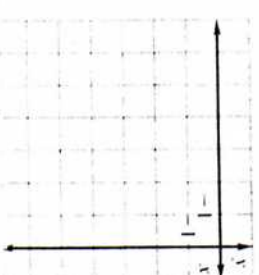
13. Write the equation of the line passing through $(-3, 2)$ and is (a) parallel to, and (b) perpendicular to, the line $y = 6x - 2$.

14. Draw a scatter plot of the data. Write the equation of the best-fitting line.

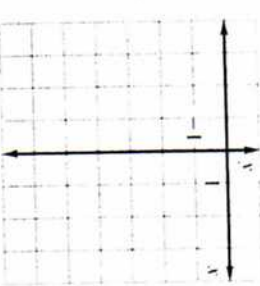
- $(1, 7.5)$, $(1.5, 6)$, $(2, 6)$, $(3, 5)$, $(4, 4.5)$, $(5, 5)$, $(6, 3)$, $(7, 3.5)$, $(7.5, 4)$, $(8, 3.5)$



15. Graph the function $y = -2|x + 4| - 1$. Identify the vertex.



16. Graph $2x + 3y = -9$.



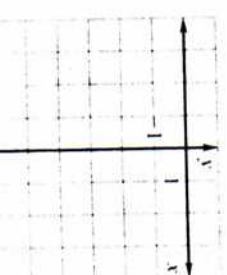
17. Solve the system of equations by the elimination method.

- $3x - 2y = 10$
- $5x + 3y = -15$

18. The drama club sold a total of 370 tickets to their spring production. Adult tickets cost \$8 each and student tickets cost \$5 each. If the amount sold was \$2540, how many adult tickets were sold?

19. Graph the system of inequalities.

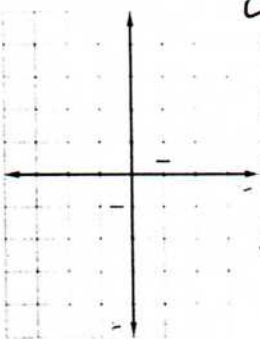
- $3x - 2y < 8$
- $4x + y < -3$



20. Solve the system graphically. Then classify the system as *consistent and independent*, *consistent and dependent*, or *inconsistent*.
one solution / *many solutions* or *no solution*

$$3x + 7y = -4$$

$$5x + 3y = 2$$



21. Solve the system of three equations.

$$2x - 3y + 5z = 13$$

$$-3x + 3y - 2z = -8$$

$$5x - 2y + 4z = 2$$

22. Multiply the matrices, if possible.

$$\begin{bmatrix} 4 & -2 \\ 3 & 6 \\ 1 & 0 \end{bmatrix} \begin{bmatrix} 1 & 0 & -2 \\ 4 & 5 & 3 \end{bmatrix}$$

23. Evaluate the determinant of the matrix.

$$\begin{bmatrix} 5 & 3 & 1 \\ -2 & 4 & 2 \\ 1 & 0 & 3 \end{bmatrix}$$

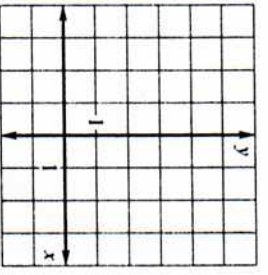
24. Solve the system using Cramer's Rule.

$$\begin{aligned} 5x - 12y &= 4 \\ 4x - 7y &= -2 \end{aligned}$$

25. Use an inverse matrix to solve the system.

$$\begin{aligned} -2x + y &= -6 \\ 3x - 3y &= 12 \end{aligned}$$

26. Graph $y = 2x^2 - 4x + 1$. Identify the vertex and axis of symmetry.



27. Factor $25x^2 - 121$.

28. Solve the equation $4x^2 - 5x - 6 = 0$ by factoring.

29. Solve $5(x - 3)^2 = 75$ by finding square roots.

30. Write the product as a complex number in standard form.
 $(3 + 2i)(4 - 5i)$

31. Solve $x^2 - 5x + 2 = 0$ by completing the square.

32. Use the quadratic formula to solve the equation $3y^2 + 7y + 3 = 0$.

33. Solve $x^2 - 5x - 24 \leq 0$ algebraically.

34. Write the quadratic function for the parabola with vertex $(-2, 3)$ that passes through the point $(-5, 1)$.

35. Evaluate $32^{-2/5}$.

36. Evaluate $\left(\frac{-2x^3}{3y^{-2}}\right)^4$.

37. Simplify $(-3x^{-5}y^2)^{-2}$.

38. Multiply $(2x - 1)(3x^2 - 5x + 4)$.

39. Factor completely $7x^3 - 56$.

40. Find all the real zeros of $f(x) = x^3 - 4x^2 - 11x + 30$.

41. Divide $(x^5 - 3x^3 - 2x + 3) \div (x + 2)$.

42. Use a graphing calculator to graph $f(x) = x^3 + 5x^2 + 2x - 8$. Identify the x-intercepts and the points where the local maximums and local minimums occur.

