

- The boat could travel 112 miles downstream in 4 hours but required 6 hours to travel 48 miles upstream. What was the speed of the boat in still water and what was the speed of the current?
- The weight of the carbon (C) in a quantity of $C_3H_3Cl_5$ was 432 grams. What was the weight of the chlorine (Cl) in the compound? (C, 12; H, 1; Cl, 35)
- The sum of the digits of a two-digit number is 15. If the digits are reversed, the new number is only 9 more than the original number. What was the original number?
- Gomez Motors purchased an automobile for \$12,000 and sold it for \$15,000. What was the markup as a percentage of the purchase price and what was the markup as a percentage of the selling price?

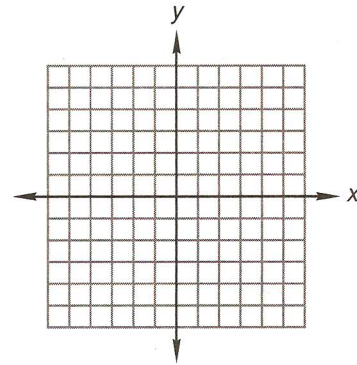
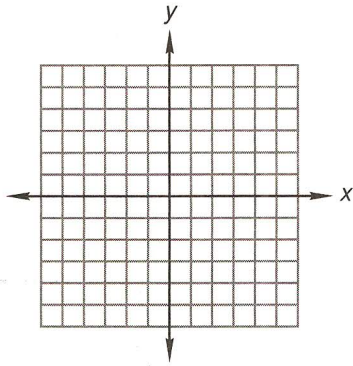
5. Solve:
$$\begin{cases} x + 2y + z = 7 \\ 3x - y + z = -12 \\ 4x + 3y - 2z = 9 \end{cases}$$

6. Solve:
$$\begin{cases} \frac{3}{5}x - \frac{1}{4}y = 7 \\ 0.08x + 0.05y = 1.6 \end{cases}$$

7. Show that $3.\overline{6123}$ is a rational number by writing it as a fraction of integers.

8. Complete the square as an aid in graphing:
 $y = x^2 + 2x - 1$

9. Graph:
$$\begin{cases} 4x < -12 \\ 2x + y \geq -4 \end{cases}$$



- Solve by factoring: $27x = -27x^2 - 6x^3$
- Solve: $\sqrt{x} + 2 = \sqrt{x + 12}$
- Factor: $64a^3c^6 + x^6y^9$
- Expand: $(a^{3/2} + c^{1/4})^2$
- Find $(f - h)(-3)$ if $f(x) = (x + 1)^2$; $D = \{\text{Reals}\}$, and $h(x) = x$; $D = \{\text{Integers}\}$.
- Graph on a number line: $x^2 - 5x \geq -6$; $D = \{\text{Reals}\}$



16. Use unit multipliers to convert 600 milliliters per minute to liters per hour.

17. Solve:
$$\begin{cases} x + 3y = 7 \\ xy = 2 \end{cases}$$

Simplify:

18.
$$\frac{3i - 2i^2 + 3}{\sqrt{-16} - \sqrt{-2}\sqrt{-2}}$$

19.
$$\sqrt[5]{16\sqrt{2}}$$

20. Write $-5R + 12U$ in polar form.