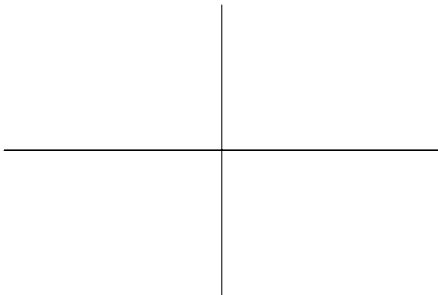


Please show all work and justify all answers.

1. Evaluate the expression $\frac{5 \cdot 2^{-3}}{4^{-1} \cdot 25}$.

2. Write the rational expression $\frac{x^2 - x - 6}{5(x - 3)}$ in simplest form.

3. Use intercepts and symmetry to sketch the graph of the equation $x = y^2 - 9$.



4. Solve the quadratic equation $x^2 - 3x - 4 = 0$ by completing the square.

5. Find all solutions of the equation. $|3x - 6| = 9$.

6. In 1980 an acre of farmland sold for \$737. By 1997, the price of an acre had risen to \$945. Find the percent change in price.

7. Solve each inequality and sketch the solution on the real number line.

a. $3 - 2x \leq 9$

b. $-6 < 7x + 2 \leq 5$

c. $|x + 2| < 9$

d. $|2x - 1| \geq 9$

e. $(x + 2)(3 - x) \leq 0$

f. $2x^2 - 5x > 3$

g. $\frac{x+16}{3x+2} \leq 5$

8. Find the domain of x in the expression $\sqrt{9-x^2}$.
9. Consider the two points $(1, -2)$ and $(3, 5)$ as you work the following parts.
- Find the **slope** of the line that passes through the two given points.
 - Find an **equation** for the line that passes through the two given points.
 - Find the **y-intercept** of the line that passes through the two given points.
10. Find an equation for the **vertical** line that passes through the point $(3, 7)$.

11. Determine which of the following equations represents y as a function of x .

a. $|x| + |y| = 1$

b. $x^2 + y^2 = 1$

c. $y^2 = 7 - x$

d. $2x - 3y = 7$

e. None of these

12. Given that $f(x) = x^2 - 3x + 4$, find and simplify $f(x + 2) - f(2)$.