

Please show all work and justify all answers.

1. Evaluate each expression.

a. $5 + |-2|$

b. $\frac{5 \cdot 3^{-2}}{2^{-1} \cdot 4}$

2. Expand (multiply out) each expression.

a. $(5x - 1)(x + 3)$

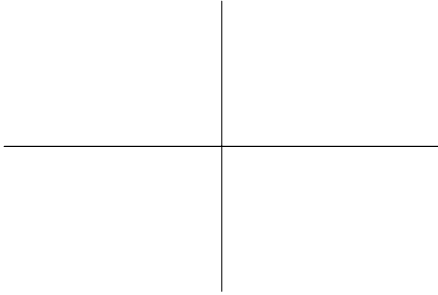
b. $(2x + y)^2$

3. Write the rational expression $\frac{x^2 + x - 2}{3(x - 1)}$ in simplest form.

4. Perform the division $\frac{x}{7(x - 3)} \div \frac{5x + 1}{x(x - 3)}$ and simplify.

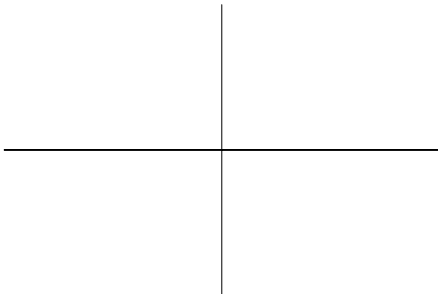
5. Complete the following table and use the resulting solution points to sketch the graph of the equation $y = 2x - x^2$.

x	-1	0	1	2	3
y					



6. Check to see if the graph of the equation $3xy^2 + 2x^2 = 0$ has x -axis symmetry, y -axis symmetry, or origin symmetry.

7. Use intercepts and symmetry to sketch the graph of the equation $x = y^2 - 4$.



8. Find an equation of the circle with center $(-3, 2)$ and radius 5.

9. Solve each equation and check your solution.

a. $3x + 17 = 6x - 4$

b. $\frac{3}{x(x-3)} + \frac{4}{x} = \frac{1}{x-3}$

10. **Operating Cost.** A delivery company has a fleet of vans. The annual operating cost per van is $C = 0.32m + 2500$ where m is the number of miles traveled by a van in a year. What number of miles will yield an annual operating cost that is equal to \$15,000?

11. Solve the quadratic equation $2x^2 + 7x - 4 = 0$ by factoring.

12. Solve the quadratic equation $3x^2 = 48$ by extracting square roots.

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

14. Use the Quadratic Formula to solve the equation $2x^2 - 5x - 1 = 0$.

15. Find all solutions of each equation.

a. $x^4 + 5x^2 - 36 = 0$

b. $(x - 7)^{3/2} = 8$

c. $|2x - 3| = 5$