

1. Multiply  $(2x - 3)(x^2 - 5x + 1)$
2. Simplify  $\frac{32x^{-4}y^3}{4x^{-5}y^8}$  and write your answer as an expression without negative exponents.
3. Multiply and write the product in simplest form:  $\frac{x^2 - 4x + 4}{x - 3} \cdot \frac{2x - 6}{x^2 - 4}$
4. Solve for  $x$ :  $a = \frac{x - b}{y}$
5. Find an equation for the line parallel to  $y = 3x + 1$  that goes through the point  $(0, 5)$ .
6. Solve the following equation by factoring:  $2n^2 + 5n - 12 = 0$ . Check your answer.
7. Simplify and then if appropriate, write in radical notation:  $(3a^{5/6})(8a^{2/3})$
8. Find the slope, the  $x$ -intercept, and the  $y$ -intercept of the graph  $2x + 4y = 7$
9. Use the quadratic formula to solve:  $x^2 + 2x - 1 = 0$
10. Solve the inequality  $1 \leq \frac{x - 3}{2} < 3$  and graph the solution on a number line.
11. The height  $h$  in feet of a rocket  $t$  seconds after launch is given by the equation:  $h = 144t - 16t^2$ .
  - a) When will the rocket reach a height of 320 feet?
  - b) When will the rocket be back on the ground?
12. Write an equivalent expression with as many factors as possible removed from under the radical:  $\sqrt{50x^6y^9}$
13. Rationalize the denominator  $\frac{5}{7 - \sqrt{3}}$
14. Multiply  $(5 + \sqrt{2})(8 - \sqrt{2})$
15. How long is a guy wire that reaches from the top of a 12 foot pole to a point on the ground 5 ft from the bottom of the pole?