



1. Emily is painting a rectangular wall in her room. If the length of the wall is $x + 3$ feet and the width is x feet, and the total area to be painted is 36 square feet, what are the dimensions of the wall?
2. Jack is arranging tiles in a square pattern on his patio. If each side of the square measures $x + 2$ inches and the total area of the patio is 64 square inches, what's the length of each side of the square?
3. Mia is selling lemonade at a stand. If she charges \$1 per cup and sells x cups, but also offers a \$5 discount for buying more than 10 cups, how many cups did she sell if she earned \$15?
4. Ethan is building a rectangular sandbox for his little sister. If the length of the sandbox is $x+2$ feet and the width is x feet, and the total area of the sandbox is 24 square feet, what are the dimensions of the sandbox?
5. Sophia is throwing a ball against a wall. If the height h (in meters) of the ball above the ground at time t seconds is given by the quadratic equation $h(t) = -2t^2 + 8t + 5$, when does the ball hit the ground?
6. Lucas is setting up a triangular tent for a camping trip. If the height of the tent is $x+1$ meters and the length of the base is $x+3$ meters, how long should the diagonal side be to fit the tent poles perfectly?
7. Olivia is a gardener planting flowers in her garden. If she arranges the flowers in rows and plants x flowers in each row, and she has a total of 25 flowers, how many rows of flowers does she have?
8. Daniel is launching a model rocket. If the height h (in meters) of the rocket above the ground at time t seconds is given by the quadratic equation $h(t) = -3t^2 + 12t + 8$, when does the rocket reach its maximum height?
9. Sarah is baking cookies for a bake sale. If she needs x cups of flour and $2x$ cups of sugar, and she needs a total of 15 cups of ingredients, how many cups of flour does she need?
10. Noah is flying a kite at the park. If the height h (in meters) of the kite above the ground at time t seconds is given by $h(t) = -t^2 + 6t + 3$, what is the maximum height the kite reaches?