

1. Find an integer such that the sum of twice the square of the integer and the integer itself is 55.
2. A landscape architect has included a rectangular flower bed measuring 9 ft by 5 ft in her plans for a new building. She wants to use two colors of flowers in the bed, one in the center and the other for a border of the same width on all four sides. If she has enough plants to cover 24 ft^2 for the border, **how wide can the border be?**
3. A rectangular piece of metal has length twice the width. Squares with sides 4 inches long are cut from the four corners, and the flaps are folded upward to form an open box. If the volume of the box is 1536 in^3 , **what were the original dimensions of the piece of metal?**

4. A ball is thrown upward from ground level with an initial velocity of 108 ft per sec. Its height, s in feet after t seconds is given by the equation, $s = -16t^2 + 108t$. **After how many seconds will it be 50 ft above the ground? After how many seconds will it return to the ground?**
5. A kite is flying on 50 ft of string. Its vertical distance from the ground is 10 ft more than its horizontal distance from the person flying it. Assuming that the string is being held at ground level, **find its horizontal distance from the person and its vertical distance from the ground?**