

## Algebra I Worksheet #4 Unit 12 Selected Homework Solutions

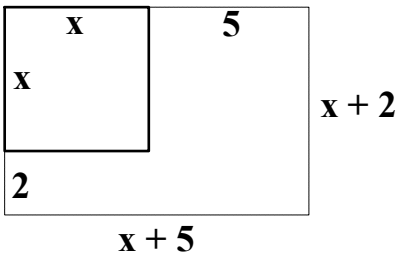
Solve each of the following problems algebraically.

2. One number is equal to the square of another. Their sum is 72. What are the numbers?

$$\begin{aligned}x & \quad x^2 + x = 72 \\x^2 & \quad x^2 + x - 72 = 0 \\& \quad (x + 9)(x - 8) = 0 \\& \quad x = -9 \quad \text{or} \quad x = 8 \\& \quad x^2 = 81 \quad \quad x^2 = 64\end{aligned}$$

**They are -9 and 81 or 8 and 64.**

5. Bill has a square garden and wants to make it larger by increasing one dimension by 5 feet and the other by 2 feet. What are the dimensions of the new rectangular garden if its area is 130 square feet?



$$\begin{aligned}(x + 5)(x + 2) &= 130 \\x^2 + 7x + 10 &= 130 \\x^2 + 7x - 120 &= 0 \\(x + 15)(x - 8) &= 0 \\x = -15 \quad \text{or} \quad x &= 8 \\x + 2 &= 10 \\x + 5 &= 13\end{aligned}$$

**The length is 13 feet, and the width is 10 feet..**