

# Algebra A

## Using Linear Equations

Name \_\_\_\_\_

*Solve the problems below. Follow the steps.*

1. The length of a rectangle is 4 inches greater than the width. The perimeter of the rectangle is 24 inches. Find the length and width of the rectangle.

a. What do you want to find?

b. Draw a picture of the rectangle and label the sides with **L** and **W**.

c. What do you know about the length of the rectangle compared to the width?

d. Write an equation for the Length of the rectangle using the width.

$$L = \underline{\hspace{2cm}}$$

e. What do you know about the perimeter of the rectangle?

f. Write an equation for the perimeter using **L** and **W**.

g. Replace the **L** in the equation above with the equation you wrote from *d*. Solve the equation.

h. Answer the question.

2. A train leaves the station traveling west at 80 mph. On a parallel track (track that goes the same direction), a second train leaves the station 3 hours later traveling at 100 mph. How long will it take the second train to catch up with the first?
- What do you want to find?
  - Write an equation for how far the **2<sup>nd</sup> train** travels in **t** hours.
  - Write an equation for how far the **1<sup>st</sup> train** travels in **t** hours.
  - How far of a head start did the **1<sup>st</sup> train** get? How did you find it?
  - Rewrite the equation in **part c** to account for the head start.
  - When the trains meet, what will be the same for both trains?
  - Set the equations in **part e** equal to the equation in **part b**. Solve.
  - Answer the question.