Example: Perimeter and Area of a Parallelogram

Problem:

The area of this parallelogram is 120 square feet. Find the value of x and then find the perimeter. The image is a parallelogram with base 2x minus 6 feet, side 17 feet, and height 15 feet.

Solution:

Recall that the formula to find the area of a parallelogram is base times height. Remember that the height is the perpendicular distance from one side to the other.

We can write the equation 120 equals the quantity 2 x minus 6 times 15, because the base is 2x minus 6 and the perpendicular height is 15.

Distribute the 15 to get 120 equals 30 x minus 90.

Add 90 to both sides of the equation to get 210 equals 30 x.

Divide by 30. x equals 7.

Now that we have the value of x, we can find the length of the side 2 x minus 6 by substituting in x equals 7.

2 times 7 minus 6 equals 8. This is the length of the horizontal side of the parallelogram. The length of the other sides is 17.

To find the perimeter, we use the formula 2 times one side length plus 2 times the other side length.

Using the lengths we found, the perimeter is 2 times 8 plus 2 times 17, which equals 50.

The perimeter of this parallelogram is 50 feet.