

**Algebra 2**  
**Unit: Geometry**  
**Section: Geometry of Quadrilaterals**

**Flash Cards: Algebra of Rectangles and Parallelograms**

Directions: Answer the following.

1. Consider rectangle ABCD. If side AB measures  $10x - 4$  and side CD measures  $2x + 60$ . Find the value of  $x$  and then the length of side AB.
2. Consider rectangle WXYZ with diagonals WY and XZ. Segment WY measure  $7a + 4$  and segment XZ measures  $2a + 32$ . Find the value of  $a$  and then the length of each diagonal.
3. Consider rectangle PQRS. Angle P measures  $(3x + 3)^\circ$ . Find the value of  $x$ .
4. Consider parallelogram HJKL with diagonals that intersect at point L. Segment HL measures  $4b - 7$  and segment HJ measures 52. Find the value of  $b$  and then the length of segment HL.

Answers:

1. Opposite sides of a rectangle are congruent.  
 $10x - 4 = 2x + 60$   
 $x = 8$   
Length of AB =  $10(8) - 4 = 76$ .

2. The diagonals of a rectangle are congruent.  
 $7a + 4 = 2a + 32$   
 $5a = 28$   
 $a = 5.6$   
Length of WY =  $7(5.6) + 4 = 43.2$ .  
Length of XZ =  $2(5.6) + 32 = 43.2$ .

3. All angles in a rectangle are congruent and measure 90 degrees.  
 $3x + 3 = 90$   
 $3x = 87$   
 $x = 29$ .

4. Since the diagonals in a parallelogram bisect each other, segment HL is half of segment HJ.  
 $4b - 7 = 26$   
 $4b = 33$   
 $b = 8.25$   
Length of segment HL =  $4(8.25) - 7 = 26$