

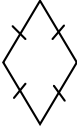
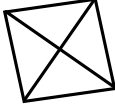
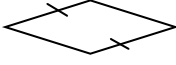
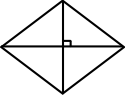
Rhombi & Rectangles

A **Rhombus** is a special type of parallelogram (more than one are called **Rhombi**). It follows all of the rules of parallelograms, with two more rules added.

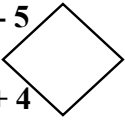
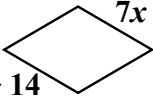
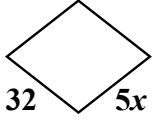
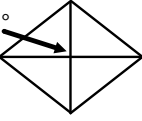
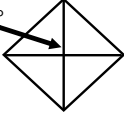
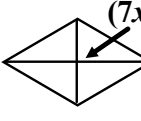
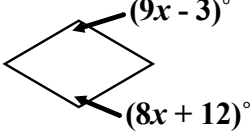
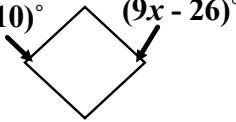
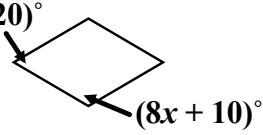
NEW **RHOMBUS** RULE #1: **All of the sides** of a rhombus are **congruent**.

NEW **RHOMBUS** RULE #2: The **diagonals** (lengths that go across the figure) **cross at a right angle**.

1. All of the figures below are **parallelograms**. Of these figures, which two do you **know** are **rhombi**?

a.	b.	c.	d.
			

Use the rules of **parallelograms** and of **rhombi** to determine the value of x . All of the figures are rhombi.

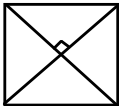

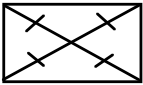
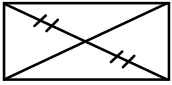
<p>EXAMPLE</p> <div style="text-align: center;"> $3x - 5$  $2x + 4$ </div> <p><i>All the sides of a rhombus are congruent, so set them equal!</i></p> $3x - 5 = 2x + 4$ $x - 5 = 4$ $x = \boxed{9}$	<p>2.</p> <div style="text-align: center;">  </div>	<p>3.</p> <div style="text-align: center;">  </div>
<p>EXAMPLE</p> <div style="text-align: center;"> $(3x - 15)^\circ$  </div> <p><i>The diagonals of a rhombus cross at a right angle! Set it equal to 90°!</i></p> $3x - 15 = 90$ $3x = 105$ $x = \boxed{35}$	<p>4.</p> <div style="text-align: center;"> $(6x - 12)^\circ$  </div>	<p>5.</p> <div style="text-align: center;"> $(7x + 34)^\circ$  </div>
<p>EXAMPLE</p> <div style="text-align: center;"> $(9x - 3)^\circ$  $(8x + 12)^\circ$ </div> <p><i>A rhombus is a parallelogram, and opposite parts of a parallelogram are congruent. Set them equal!</i></p> $9x - 3 = 8x + 12$ $x - 3 = 12$ $x = \boxed{15}$	<p>6.</p> <div style="text-align: center;"> $(6x + 10)^\circ$ $(9x - 26)^\circ$  </div>	<p>7. Careful! These aren't opposites. They're next to each other, which, on parallelograms, means...?</p> <div style="text-align: center;"> $(2x + 20)^\circ$  $(8x + 10)^\circ$ </div>

A **Rectangle** is another special type of parallelogram. It follows all of the rules of parallelograms (not rhombus rules), with two more added.

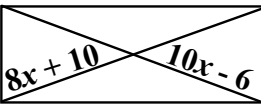
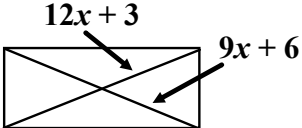
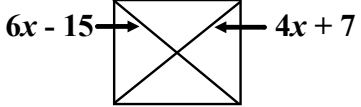
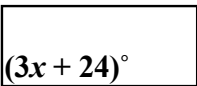
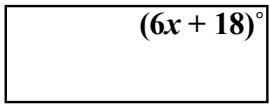
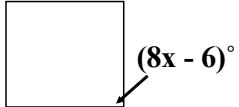
NEW **RECTANGLE RULE #1**: All of the angles of a rectangle are **right angles**.

NEW **RECTANGLE RULE #2**: The **diagonals** (lengths that go across the figure) are **congruent**.

8. All of the figures below are **parallelograms**. Of these figures, which two do you **know** are **rectangles**?

a. 	b. 	c. 	d. 
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Use the rules of **parallelograms** and of **rectangles** to determine the value of x . All of the figures are rectangles.

<p>EXAMPLE</p>  <p>Since the diagonals of a rectangle, which is a parallelogram, are congruent, all parts of both diagonals will be congruent as well. Set 'em equal!</p> $8x + 10 = 10x - 6$ $10 = 2x - 6$ $16 = 2x$ $8 = x$ $x = \boxed{8}$	<p>9.</p> 	<p>10.</p> 
<p>EXAMPLE</p>  <p>Every angle in a rectangle is 90°, so set it equal to 90!</p> $3x + 24 = 90$ $3x = 66$ $x = \boxed{22}$	<p>11.</p> 	<p>12.</p> 

Transforming Points (x, y) : Use the translation rule $(x, y) \rightarrow (x + _, y + _)$. All you have to do is follow the rule.

<p>13. Transform each point according to the rule. $(x, y) \rightarrow (x - 2, y + 5)$ EXAMPLE $(3, 1) \rightarrow (3 - 2, 1 + 5) \rightarrow \boxed{(1, 6)}$</p> <p>a. $(6, 2) \rightarrow$ b. $(-2, 4) \rightarrow$ c. $(7, 8) \rightarrow$</p>	<p>14. Transform each point according to the rule. $(x, y) \rightarrow (x + 4, y - 3)$ EXAMPLE $(3, 1) \rightarrow (3 + 4, 1 - 3) \rightarrow \boxed{(7, -2)}$</p> <p>a. $(6, 2) \rightarrow$ b. $(-2, 4) \rightarrow$ c. $(7, 8) \rightarrow$</p>	<p>15. Transform each point according to the rule. $(x, y) \rightarrow (x + 7, y + 9)$ EXAMPLE $(3, 1) \rightarrow (3 + 7, 1 + 9) \rightarrow \boxed{(10, 10)}$</p> <p>a. $(6, 2) \rightarrow$ b. $(-2, 4) \rightarrow$ c. $(7, 8) \rightarrow$</p>
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