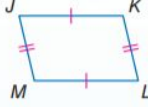
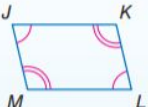
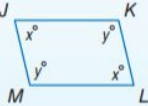
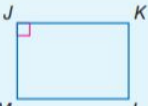
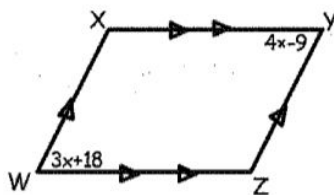


Parallelogram:

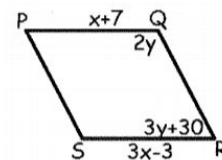
Theorems	Properties of Parallelograms	For Your FOLDABLE
<p><b>6.3</b> If a quadrilateral is a parallelogram, then its opposite sides are congruent.</p> <p><b>Abbreviation</b> <i>Opp. sides of a <math>\square</math> are <math>\cong</math>.</i></p> <p><b>Example</b> If <math>JKLM</math> is a parallelogram, then <math>\overline{JK} \cong \overline{ML}</math> and <math>\overline{JM} \cong \overline{KL}</math>.</p>		
<p><b>6.4</b> If a quadrilateral is a parallelogram, then its opposite angles are congruent.</p> <p><b>Abbreviation</b> <i>Opp. <math>\angle</math>s of a <math>\square</math> are <math>\cong</math>.</i></p> <p><b>Example</b> If <math>JKLM</math> is a parallelogram, then <math>\angle J \cong \angle L</math> and <math>\angle K \cong \angle M</math>.</p>		
<p><b>6.5</b> If a quadrilateral is a parallelogram, then its consecutive angles are supplementary.</p> <p><b>Abbreviation</b> <i>Cons. <math>\angle</math>s in a <math>\square</math> are supplementary.</i></p> <p><b>Example</b> If <math>JKLM</math> is a parallelogram, then <math>x + y = 180</math>.</p>		
<p><b>6.6</b> If a parallelogram has one right angle, then it has four right angles.</p> <p><b>Abbreviation</b> <i>If a <math>\square</math> has 1 rt. <math>\angle</math>, it has 4 rt. <math>\angle</math>s.</i></p> <p><b>Example</b> In <math>\square JKLM</math>, if <math>\angle J</math> is a right angle, then <math>\angle K</math>, <math>\angle L</math>, and <math>\angle M</math> are also right angles.</p>		

1. The figures below are parallelograms. Solve for the variable below:

a.

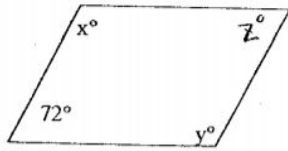


b.

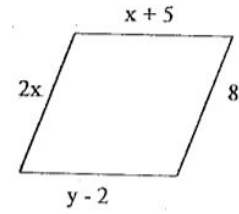


Geometry CP  
6.2 Parallelograms

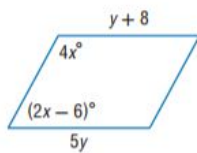
c.



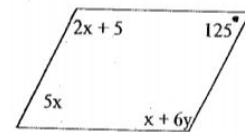
d.



e.



f.



**Theorems**

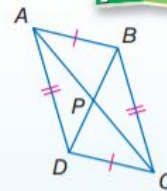
**Diagonals of Parallelograms**

For Your  
**FOLDABLE**

**6.7** If a quadrilateral is a parallelogram, then its diagonals bisect each other.

**Abbreviation** *Diag. of a  $\square$  bisect each other.*

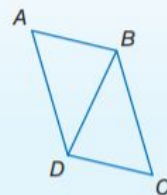
**Example** If  $ABCD$  is a parallelogram, then  $\overline{AP} \cong \overline{PC}$  and  $\overline{DP} \cong \overline{PB}$ .



**6.8** If a quadrilateral is a parallelogram, then each diagonal separates the parallelogram into two congruent triangles.

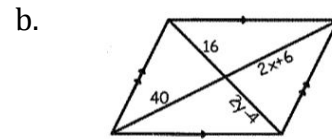
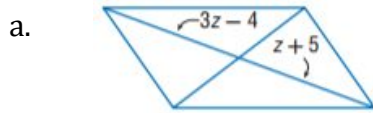
**Abbreviation** *Diag. separates a  $\square$  into 2  $\cong \triangle$ .*

**Example** If  $ABCD$  is a parallelogram, then  $\triangle ABD \cong \triangle CDB$ .

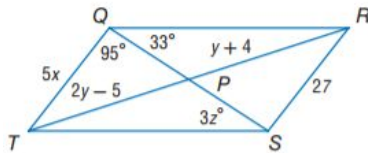


Geometry CP  
6.2 Parallelograms

2. The figures below are parallelograms. Determine the value of the variables.



3. If QRST is a parallelogram, find the value of the variables.



4. Use the diagram to find the measures.  $m\angle ZVX = 80^\circ$ ,  $VZ = 7$ ,  $VX = 10$ ,  $VT = 5$

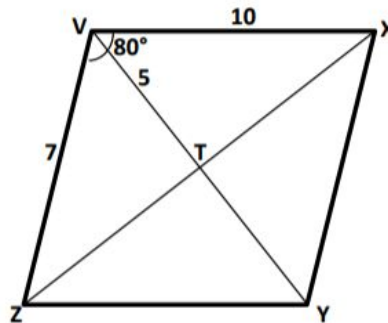
$m\angle VZY = \underline{\hspace{2cm}}$

$m\angle XYZ = \underline{\hspace{2cm}}$

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

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

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



5. Determine the coordinates of the intersection of the diagonals of  $\square FGHI$  with vertices  $F(-2, 4)$ ,  $G(3, 5)$ ,  $H(2, -3)$ , and  $I(-3, -4)$ .

6. Determine the coordinates of the intersection of the diagonals  $\square RSTU$  with vertices  $R(-8, -2)$ ,  $S(-6, 7)$ ,  $T(6, 7)$ , and  $U(4, -2)$ .