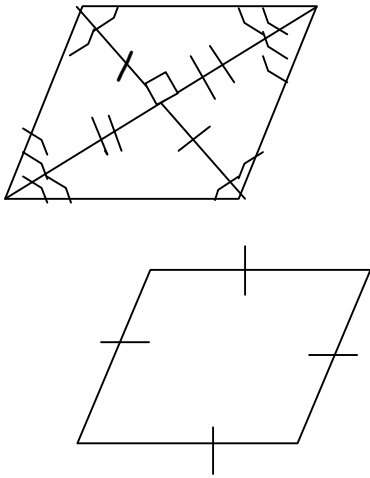
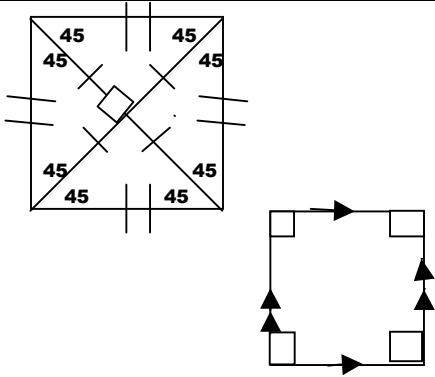
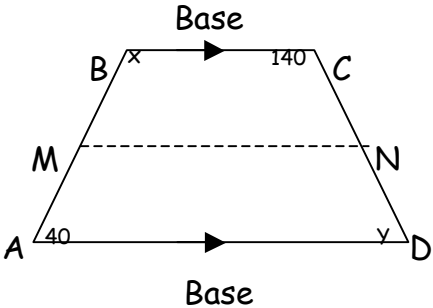


### Geometry Journal: Quadrilaterals

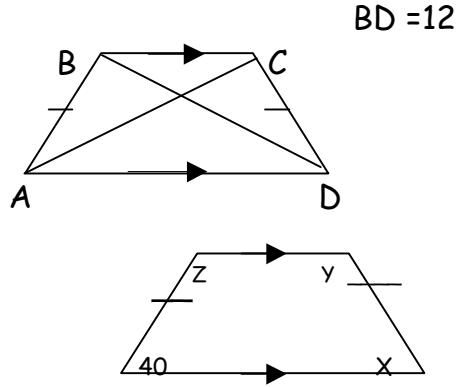
Post, Thm, or Defn	Example/Drawing	Conclusion
<p><b>1. Parallelogram:</b>                      Quad. with 2 pairs of opp. sides // and <math>\cong</math>.</p> <p>[ Sides will have same slope and same length]</p>		<p><b>//-ogram :</b>                      opp. sides // and <math>\cong</math>.</p> <p>so: <math>4x-8 = 16</math>  <math>4x = 24</math>    <math>x = 6</math></p> <p><math>3y - 2 = 31</math>  <math>3y = 33</math>    <math>y = 11</math></p>
<p><b>2. Parallelogram:</b></p> <p>opp. <math>\angle</math>s <math>\cong</math>                      cons. <math>\angle</math>s supp.</p>		<p><math>y = 120</math> since opp. <math>\angle</math>s of //-ogram are <math>\cong</math></p> <p><math>5x + 20 + 120 = 180</math> } cons. angles of //-ogram are supp</p> <p><math>5x + 140 = 180</math></p> <p><math>5x = 40</math></p> <p><math>x = 8</math></p> <p><math>m\angle A = 60^\circ</math></p> <p><math>m\angle C = 60^\circ</math></p>
<p><b>3. Parallelogram:</b></p> <p><u>diagonals</u> bisect each other.</p>		<p>If <math>AC = 60</math> then <math>AE = 30</math> (half of 60)</p> <p>If <math>ED = 40</math> then <math>BD = 80</math> (twice 40)</p>
<p><b>4. Rectangle:</b></p> <p>a //-ogram with 4 right angles.</p>		<p><b>PROPERTIES:</b>  <b>ALL //-OGRAM PLUS:</b></p> <p>1) diagonals are <math>\cong</math></p> <p>2) 4 rt. <math>\angle</math>s</p>

<p><b>5. Rhombus:</b></p> <p>a //ogram with 4 congruent sides</p>		<p><b>PROPERTIES:</b> ALL // - OGRAM PLUS</p> <ol style="list-style-type: none"> <li>1) diagonals <math>\perp</math></li> <li>2) Diagonals bisect angles</li> <li>3) All sides <math>\cong</math></li> </ol>
<p><b>6. Square:</b></p> <p>a // - ogram with 4 congruent sides and 4 right angles</p> <p>{A Rectangular Rhombus}</p>		<p><b>PROPERTIES:</b> ALL // - OGRAMS PLUS</p> <ol style="list-style-type: none"> <li>1) Diagonals are <math>\perp</math></li> <li>2) Diagonals are <math>\cong</math></li> <li>3) Diagonals bisect angles</li> <li>4) 4 rt angles</li> <li>5) 4 sides <math>\cong</math></li> </ol>
<p><b>7. Trapezoid:</b></p> <p>a quadrilateral with only one pair of // sides.</p> <p><b>NOT A // OGRAM!!!</b></p> <p>median = <math>\frac{1}{2} (BC + AD)</math></p>	 <p>BC = 24 AD = 46 Find length of median MN.</p>	<p><math>x = 140</math> (<math>\angle A</math> and <math>\angle B</math> - interior angles supp.)</p> <p><math>y = 40</math> (<math>\angle C</math> and <math>\angle D</math> - interior angles supp.)</p> <p>median = <math>\frac{1}{2} (BC + AD)</math>  <math>= \frac{1}{2} (24 + 46) = 35</math></p>

8. Isosceles Trapezoid:

Trapezoid whose legs are  $\cong$ .

Legs are not  $\parallel$ .  
Bases are  $\parallel$



Properties

base angles  $\cong$

diagonals  $\cong$  but don't bisect each other

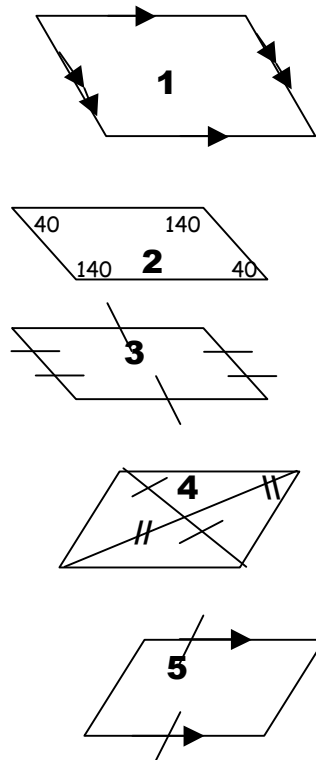
$AC = 12$

$x = 40$

$z = 140 \quad y = 140$

9. 5 Ways

to prove that a quad. is a  $\parallel$ -ogram.



1} both prs opp sides  $\parallel$

2} both prs. opp. angles  $\cong$

3} both prs. opp. sides  $\cong$

4} diagonals bisect

5} one pr. opp sides  $\cong$  and  $\parallel$