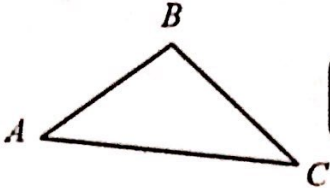
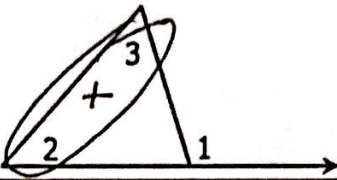
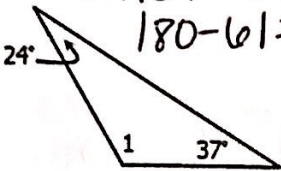
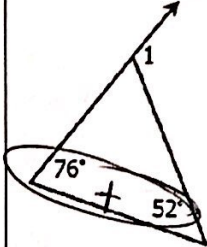
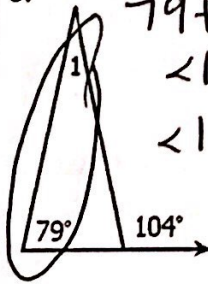
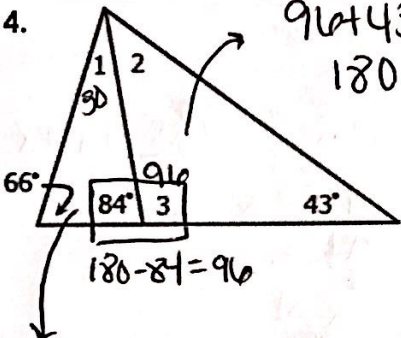
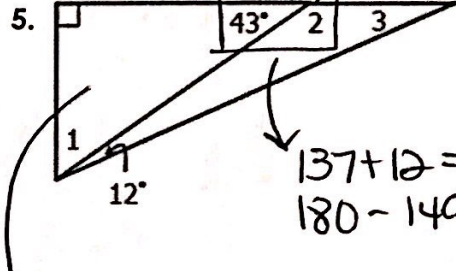
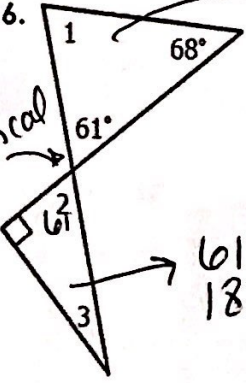
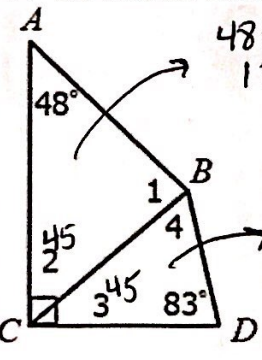
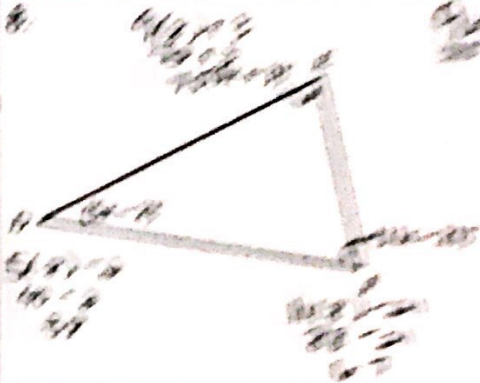


Main Ideas/Questions	Notes	3.5 Triangles and Parallel Lines
<h3>Triangle Angle Sum Theorem</h3>	<p>The sum of the measures of the interior angles of a triangle is _____</p>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto;"> <math>m\angle A + m\angle B + m\angle C = 180^\circ</math> </div>	
<h3>Exterior Angle Theorem</h3>	<p>An exterior angle is formed by extending any one side of the triangle.</p>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto;"> <p>An exterior angle is always equal to the sum of the two non-adjacent interior angles.</p> <math>m\angle 1 = m\angle 2 + m\angle 3</math> </div>	
<p><b>Directions:</b> Find all missing angles.</p>		
<p>1.</p>  $24 + 37 = 61$ $180 - 61 = 119$ $m\angle 1 = \underline{119^\circ}$	<p>2.</p>  $76 + 52 = 128$ $m\angle 1 = \underline{128}$	<p>3.</p>  $79 + \angle 1 = 104$ $\angle 1 = 104 - 79$ $\angle 1 = 25$ $m\angle 1 = \underline{25^\circ}$
<p>4.</p>  $96 + 43 = 139$ $180 - 139 = 41$ $66 + 84 = 150$ $180 - 150 = 30$ $180 - 84 = 96$ $m\angle 1 = \underline{30}$ $m\angle 2 = \underline{41}$ $m\angle 3 = \underline{96^\circ}$	<p>5.</p>  $43 + 90 = 133$ $180 - 133 = 47$ $137 + 12 = 149$ $180 - 149 = 31$ $180 - 43 = 137$ $m\angle 1 = \underline{47}$ $m\angle 2 = \underline{137^\circ}$ $m\angle 3 = \underline{31}$	
<p>6.</p>  $61 + 68 = 129$ $180 - 129 = 51$ $61 + 90 = 151$ $180 - 151 = 29$ $m\angle 1 = \underline{51^\circ}$ $m\angle 2 = \underline{61}$ $m\angle 3 = \underline{29^\circ}$	<p>7. <math>\overline{BC}</math> bisects <math>\angle ACD</math>.</p>  $48 + 45 = 93$ $180 - 93 = 87$ $45 + 83 = 128$ $180 - 128 = 52$ $m\angle 1 = \underline{87}$ $m\angle 2 = \underline{45}$ $m\angle 3 = \underline{45}$ $m\angle 4 = \underline{52}$	

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$$\frac{1}{2}(x-11)(x-25) = 120$$

$$(x-11)(x-25) = 240$$

$$x^2 - 36x + 275 = 240$$

$$x^2 - 36x + 35 = 0$$

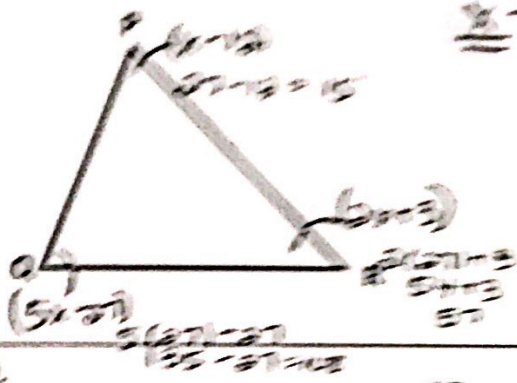
$$(x-1)(x-35) = 0$$

$$x = 1 \text{ or } x = 35$$

$$x = 1$$

$$x = 35$$

9. In a triangle, the sides are  $x-12$ ,  $x-20$ , and  $x+3$ . Find the perimeter of the triangle.



$$(x-12) + (x-20) + (x+3) = 51$$

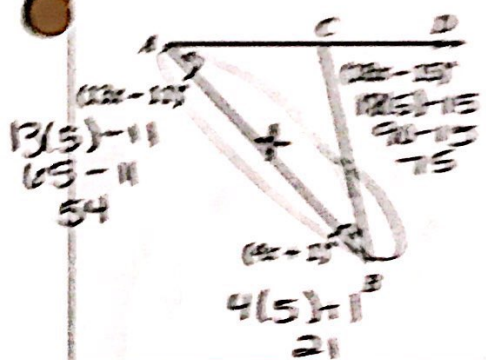
$$3x - 29 = 51$$

$$3x = 80$$

$$x = \frac{80}{3}$$

$$x = \frac{80}{3}$$

10.



$$\frac{1}{2}(2x-10)(x-5) = 54$$

$$(2x-10)(x-5) = 108$$

$$2x^2 - 20x + 50 = 108$$

$$2x^2 - 20x - 58 = 0$$

$$x^2 - 10x - 29 = 0$$

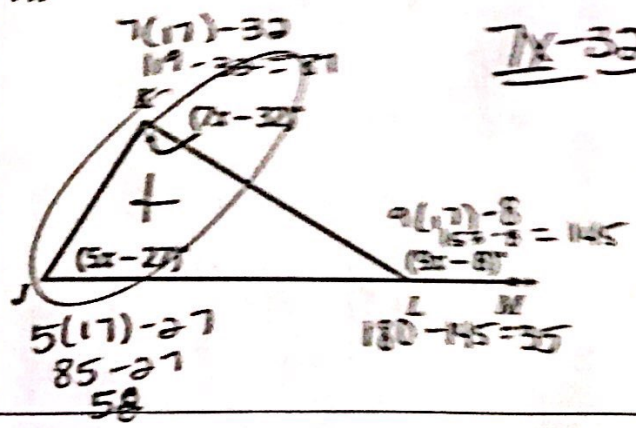
$$(x-17)(x+3) = 0$$

$$x = 17 \text{ or } x = -3$$

$$x = 17$$

$$x = -3$$

11.



$$\frac{1}{2}(x-32)(x-27) = 145$$

$$(x-32)(x-27) = 290$$

$$x^2 - 59x + 864 = 290$$

$$x^2 - 59x + 574 = 0$$

$$(x-17)(x-42) = 0$$

$$x = 17 \text{ or } x = 42$$

$$x = 17$$

$$x = 42$$