

Chapter 3 Summary Sheet



Angle Pair Relationships

<p>Parallel Lines and Transversal</p> <p>Corresponding Angles</p> $m\angle 1 = m\angle 5, \quad m\angle 2 = m\angle 6,$ $m\angle 3 = m\angle 7, \quad m\angle 4 = m\angle 8$ <p>Alternate Exterior Angles</p> $m\angle 1 = m\angle 8, \quad m\angle 2 = m\angle 7$ <p>Alternate Interior Angles</p> $m\angle 3 = m\angle 6, \quad m\angle 4 = m\angle 5$ <p>Consecutive Interior Angles</p> $m\angle 3 + m\angle 5 = 180^\circ, \quad m\angle 4 + m\angle 6 = 180^\circ$ <p>No Name Supplementary</p>	<p>Transversal – a line that intersects two lines</p> <p>Interior – between the two parallel lines</p> <p>Exterior – outside of the two parallel lines</p> <p>Alternate – opposite sides of the transversal</p> <p>Consecutive – same side of the transversal</p> <div style="text-align: center;"> <p>Arrowheads used to indicate lines are parallel</p> </div>
<p>Intersecting Lines</p> <p>Vertical Angles</p> $m\angle 1 = m\angle 4, \quad m\angle 2 = m\angle 3,$ $m\angle 5 = m\angle 8, \quad m\angle 6 = m\angle 7$ <p>Linear Pair</p> $m\angle 1 + m\angle 2 = 180^\circ, \quad m\angle 2 + m\angle 4 = 180^\circ,$ $m\angle 1 + m\angle 3 = 180^\circ, \quad m\angle 3 + m\angle 4 = 180^\circ,$ $m\angle 5 + m\angle 6 = 180^\circ, \quad m\angle 6 + m\angle 8 = 180^\circ,$ $m\angle 5 + m\angle 7 = 180^\circ, \quad m\angle 7 + m\angle 8 = 180^\circ$	

Slope-Intercept Form

$y = mx + b$ where m is the slope and b is the y-intercept

Slope Formula

$$m = \frac{y_1 - y_2}{x_1 - x_2}$$

Important: To write the equation of a line you must determine what **m** and **b** are.

Plug m and b into the slope-intercept equation and you're done.

Ex: If $m = -\frac{1}{2}$ and $b = 3$, then a completed equation would look like $y = -\frac{1}{2}x + 3$

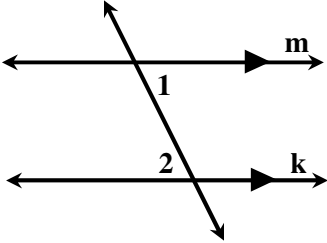
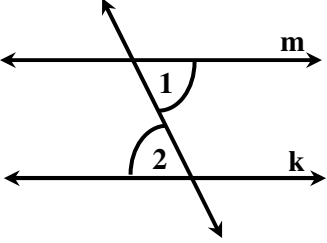
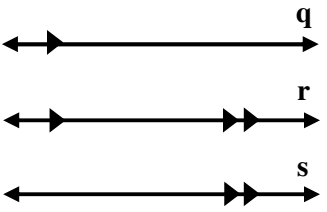
Slopes of Parallel Lines – are equal

$$m_1 = m_2$$

Slopes of Perpendicular Lines – are opposite reciprocals

$$\text{If } m_1 = \frac{a}{b}, \text{ then } m_2 = -\frac{b}{a} \quad \text{Also, } m_1 \cdot m_2 = -1$$

Statements and Reasons for Proofs

Information/Diagram Given	Statement	Reason
$m \parallel k$ 	$\angle 1 \cong \angle 2$ or $m\angle 1 = m\angle 2$	Alternate Interior Angles
$\angle 1 \cong \angle 2$ or $m\angle 1 = m\angle 2$ 	$m \parallel k$	Alternate Interior Angles Converse
$q \parallel r$ and $r \parallel s$ 	$q \parallel s$	Transitive Property of Parallel Lines