Parallel Lines and Transversals – Notes

Name____________________

Parallel Lines:
- Coplanar lines that do not intersect
- The symbol $\parallel$ means parallel to
- Arrows are used in diagrams to indicate that lines are parallel
  
Example:

$\overrightarrow{PQ}$ is parallel to $\overrightarrow{RS}$

Parallel Planes:
- Two planes that do not intersect

Skew Lines:
- Lines that do not intersect and are not coplanar

Examples:
1) Name all planes that are parallel to plane $ABG$

2) Name all segments that intersect $\overline{CH}$

3) Name all segments that are skew to $\overline{BG}$

4) Name all segments that are parallel to $\overline{EF}$

Transversal:
- A line that intersects two or more lines in a plane at different points

Examples:
Some of the runways at O'Hare International Airport are shown in the diagram. Identify the sets of lines to which each given line is a transversal.

5) line $m$

6) line $r$
Angle Relationships:

Transversal $p$ intersects lines $q$ and $r$

- Exterior Angles: $\angle 1, \angle 2, \angle 7, \angle 8$
- Interior Angles: $\angle 3, \angle 4, \angle 5, \angle 6$
- Consecutive Interior Angles: $\angle 3$ and $\angle 6$, $\angle 4$ and $\angle 5$
- Alternate Exterior Angles: $\angle 1$ and $\angle 7$, $\angle 2$ and $\angle 8$
- Alternate Interior Angles: $\angle 3$ and $\angle 5$, $\angle 4$ and $\angle 6$
- Corresponding Angles: $\angle 1$ and $\angle 5$, $\angle 2$ and $\angle 6$, $\angle 3$ and $\angle 7$, $\angle 4$ and $\angle 8$

Examples:

Identify each pair of angles as: alternate interior, alternate exterior, corresponding, consecutive interior or no relationship.

7) $\angle 1$ and $\angle 7$

8) $\angle 2$ and $\angle 10$

9) $\angle 8$ and $\angle 9$

10) $\angle 3$ and $\angle 8$

11) $\angle 4$ and $\angle 10$

12) $\angle 6$ and $\angle 11$

13) $\angle 2$ and $\angle 8$

14) $\angle 4$ and $\angle 11$
Examples:

Name the *transversal* that forms each pair of angles. Identify the relationship of each angle pair.

15) \( \angle 3 \) and \( \angle 10 \)

   Transversal: __________________

   Angle Pair: __________________

16) \( \angle 2 \) and \( \angle 12 \)

   Transversal: __________________

   Angle Pair: __________________

17) \( \angle 6 \) and \( \angle 8 \)

   Transversal: __________________

   Angle Pair: __________________

18) \( \angle 9 \) and \( \angle 16 \)

   Transversal: __________________

   Angle Pair: __________________

19) \( \angle 8 \) and \( \angle 14 \)

   Transversal: __________________

   Angle Pair: __________________