

Geometry 3.1

Identify the relationships between two lines or two planes

Name angle pairs formed by lines and transversals

+ transversal the line crossing both
parallel lines same slope

skew lines diff planes, don't int.

parallel planes

interior in between

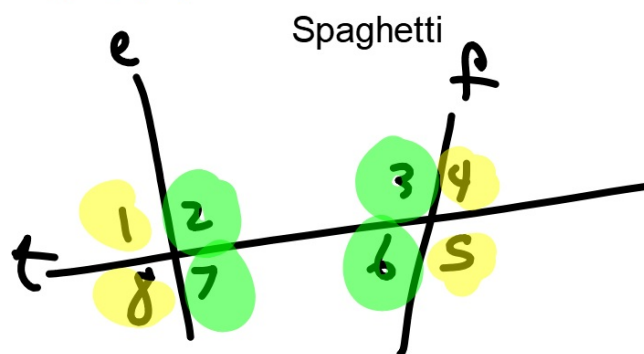
exterior outside

consecutive in a row

alternate every other

corresponding

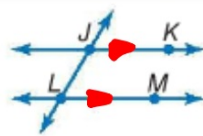
transversal - one line int 2 lines



Key Concepts Parallel and Skew

Parallel lines are coplanar lines that do not intersect.

Example $\overleftrightarrow{JK} \parallel \overleftrightarrow{LM}$



Arrows are used to indicate that lines are parallel.

Skew lines are lines that do not intersect and are not coplanar.

Example Lines ℓ and m are skew.

Parallel planes are planes that do not intersect.

Example Planes $\mathcal{A}$ and $\mathcal{B}$ are parallel.



$\overleftrightarrow{JK} \parallel \overleftrightarrow{LM}$ is read as line JK is parallel to line LM.

Real-World Example 1 Identify Parallel and Skew Relationships

Identify each of the following using the wedge of cheese below.

- a. all segments parallel to $\overline{IP}$

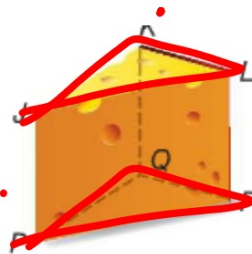
$\overline{LR}$ $\overline{KQ}$

- b. a segment skew to $\overline{KL}$

$\overline{JP}$ $\overline{PQ}$ $\overline{PK}$

- c. a plane parallel to plane PQR

JKL



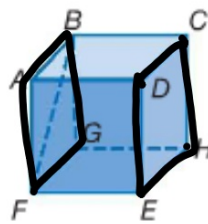
Guided Practice

Identify each of the following using the cube shown.

1A. all segments skew to $\overleftrightarrow{BC}$ $\overline{AF}$ $\overline{GF}$ $\overline{DE}$

1B. a segment parallel to $\overleftrightarrow{EH}$ $\overline{FG}$

1C. all planes parallel to plane DCH



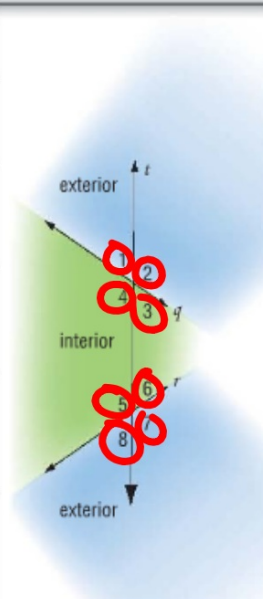
ABG

1	S
2	L
3	7
4	8

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KeyConcept Transversal Angle Pair Relationships

Four interior angles lie in the region between lines q and r .	$\angle 3, \angle 4, \angle 5, \angle 6$
Four exterior angles lie in the two regions that are not between lines q and r .	$\angle 1, \angle 2, \angle 7, \angle 8$
Consecutive interior angles are interior angles that lie on the same side of transversal t .	$\angle 4$ and $\angle 5, \angle 3$ and $\angle 6$
Alternate interior angles are nonadjacent interior angles that lie on opposite sides of transversal t .	$\angle 3$ and $\angle 5, \angle 4$ and $\angle 6$
Alternate exterior angles are nonadjacent exterior angles that lie on opposite sides of transversal t .	$\angle 1$ and $\angle 7, \angle 2$ and $\angle 8$
Corresponding angles lie on the same side of transversal t and on the same side of lines q and r .	$\angle 1$ and $\angle 5, \angle 2$ and $\angle 6, \angle 3$ and $\angle 7, \angle 4$ and $\angle 8$



X

X

Consec. ext.

$\angle 1 \angle 8$
 $\angle 2 \angle 7$

Example 3 Identify Transversals and Classify Angle Pairs

Identify the transversal connecting each pair of angles in the photo. Then classify the relationship between each pair of angles.

a. $\angle 1$ and $\angle 2$

alt. ext.

b. $\angle 5$ and $\angle 6$

cons. int

c. $\angle 2$ and $\angle 6$

corresp.

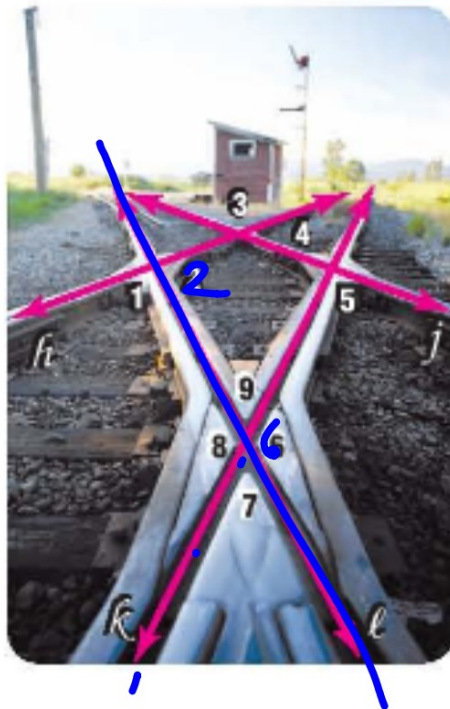
Guided Practice

3A. $\angle 3$ and $\angle 5$

3C. $\angle 5$ and $\angle 7$

3B. $\angle 2$ and $\angle 8$

3D. $\angle 2$ and $\angle 9$



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