

3-1

Lines and Angles

© Content Standards

G.CO.1 Know precise definitions of ... parallel line.
 Prepares for G.CO.9 Prove theorems about lines and angles.

Objectives To identify relationships between figures in space

Essential Understanding Not all lines and not all planes intersect.

Take note

Key Concept Parallel and Skew

Definition

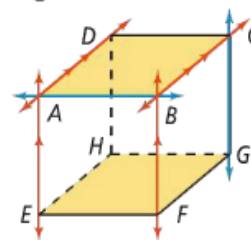
Parallel lines are coplanar lines that do not intersect. The symbol \parallel means "is parallel to."

Symbols

$$\overleftrightarrow{AE} \parallel \overleftrightarrow{BF}$$

$$\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$$

Diagram



Use arrows to show
 $\overleftrightarrow{AE} \parallel \overleftrightarrow{BF}$ and $\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$.

Skew lines are noncoplanar; they are not parallel and do not intersect.

\overleftrightarrow{AB} and \overleftrightarrow{CG} are skew.

Parallel planes are planes that do not intersect.

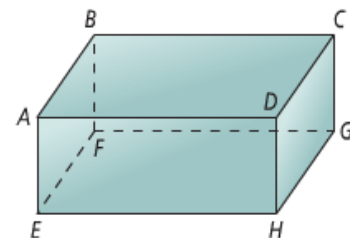
plane $ABCD \parallel$ plane $EFGH$



Problem 1 Identifying Nonintersecting Lines and Planes

In the figure, assume that lines and planes that appear to be parallel are parallel.

- Which segments are parallel to \overline{AB} ?
- Which segments are skew to \overline{CD} ?
- What are two pairs of parallel planes?
- What are two segments parallel to plane $BCGF$?





Got It? 1. Use the figure in Problem 1.

- Which segments are parallel to \overline{AD} ?
- Reasoning** Explain why \overline{FE} and \overline{CD} are *not* skew.
- What is another pair of parallel planes?
- What are two segments parallel to plane $DCGH$?

