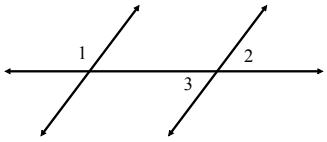
3.1 - Intro to Parallel Lines and Planes

Mental Floss: Mon Oct 1st

$\angle 1$ is supplementary to $\angle 2$, $\angle 1 = (12x + 60)^\circ$, and $\angle 2 = (7x + 30.7)^\circ$. Find $m\angle 3$.



3.1 - Parallel Lines and Planes

In Algebra 1 (2D), lines could do one of 3 things:

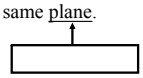
1.) Intersect each other 

2.) Be parallel to each other 

3.) Be on top of each other (same line) 

3D Geometry

Parallel Lines = Lines that do not intersect but are in the same plane.



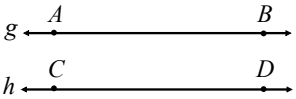
Skew Lines = Lines that do not intersect and are **not** in the same plane.

Parallel Planes = Planes that do not intersect.

$U \parallel T$ Plane $U \parallel$ Plane T

Symbols and Notation for Parallel Lines

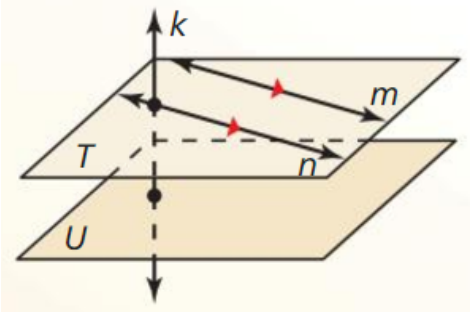
- "Tick marks" used in diagrams



- Notation for parallel lines

$\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ "Line AB is parallel to line CD"

$g \parallel h$ "Line g is parallel to line h"



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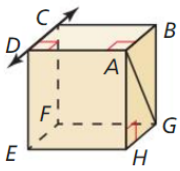
Example #1 **Identifying Lines and Planes**

Think of each segment in the figure as part of a line. Which line(s) or plane(s) appear to fit the description?



a. line(s) parallel to $\overleftrightarrow{CD}$ and containing point A

b. line(s) skew to $\overleftrightarrow{CD}$ and containing point A

c. line(s) perpendicular to $\overleftrightarrow{CD}$ and containing point A

d. plane(s) parallel to plane EFG and containing point A

Example #2 **Identifying Parallel and Perpendicular Lines**

The given line markings show how the roads in a town are related to one another.

a. Name a pair of parallel lines.

b. Name a pair of perpendicular lines.

c. Is $\overleftrightarrow{FE} \parallel \overleftrightarrow{AC}$? Explain.

Homework

- 3.1 p.129 #1,3-10,21,22,24
- ~~3.1 p.129 #2,15-18,23,25-28,30,31~~