

UNIT 1

ASSIGNMENT #7

Introduction to Parallel Planes and Skew Lines

OBEJECTIVE: S.W.B.A.T. identify the difference between parallel planes and skew lines, as well as identify congruent angles they make using proper vocabulary

DIRECTIONS: Make sure you use a different color pencil to mark up the diagram, as we go over these new definitions as a class.

PARALLEL PLANES & SKEW LINES

Not all lines and planes intersect.

- Planes that do not intersect are *parallel planes*.
- Lines that are in the same plane and do not intersect are *parallel*.
- The symbol \parallel shows that lines or planes are parallel: $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ means “Line *AB* is parallel to line *CD*.”
- Lines that are not in the same plane and do not intersect are *skew*.

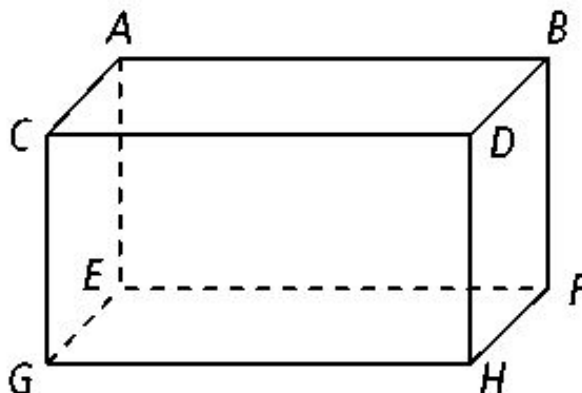
Parallel planes: plane $ABDC \parallel$ plane $EFHG$
plane $BFHD \parallel$ plane $AEFC$
plane $CDHG \parallel$ plane $ABFE$

Examples of *parallel lines*:

$$\overleftrightarrow{CD} \parallel \overleftrightarrow{AB} \parallel \overleftrightarrow{EF} \parallel \overleftrightarrow{GH}$$

Examples of *skew lines*:

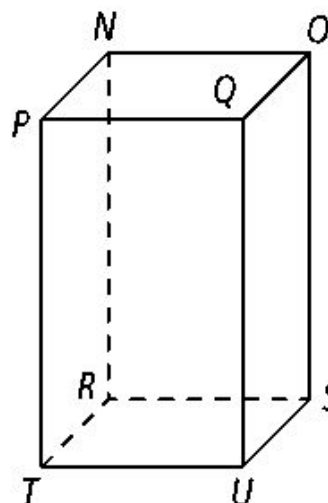
\overleftrightarrow{CD} is skew to \overleftrightarrow{BF} , \overleftrightarrow{AE} , \overleftrightarrow{EG} , and \overleftrightarrow{FH} .

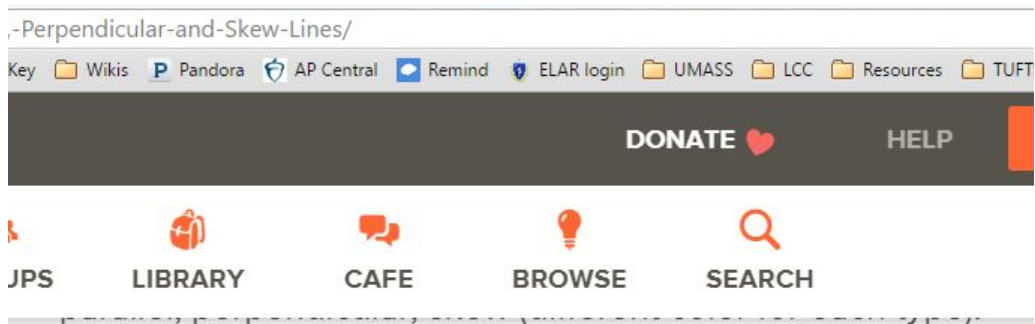


Exercises

In Exercises 1–4, use the diagram to name each of the following.

1. a line that is parallel to \overleftrightarrow{RS} _____
2. a line that is skew to \overleftrightarrow{QU} _____
3. a plane that is parallel to $NRTP$ _____
4. three lines that are parallel to \overleftrightarrow{OQ} _____





1. Name at least one pair of parallel streets	Define Parallel:
2. Name at least one pair of perpendicular streets	Define Perpendicular:
3. Is this map 2-dimensional or 3-dimensional? Why?	2-Dimensional: 3-Dimensional
4. Name two roads that intersect <u>on the map</u> but NOT actually intersect and are not parallel <u>in real life</u>	Define skew:

GIVEN: The figure is a rectangular prism

1. Identify the following as **parallel, perpendicular, or skew**.

- \overleftrightarrow{HD} and \overleftrightarrow{BC} _____
- \overleftrightarrow{HG} and \overleftrightarrow{EF} _____
- \overleftrightarrow{GC} and \overleftrightarrow{DC} _____
- \overleftrightarrow{FE} and \overleftrightarrow{HE} _____
- \overleftrightarrow{AD} and \overleftrightarrow{BF} _____
- \overleftrightarrow{AE} and \overleftrightarrow{CG} _____

- Planes EFG and ABC _____
- Planes DCG and BFG _____
- Name two lines perpendicular to **line AB**
- Name 3 lines parallel to **line AB**
- Is there such a thing as skew planes? Why or Why not