Geometry

2.3 Postulates and Diagrams

Postulates and Theorems

Postulate

- Rule that is _____

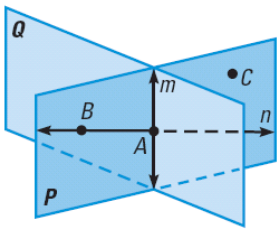
Theorem

- Rule that is _____

Basic Postulates

- Through any _____ there exists exactly _____.
- A line contains at least _____.
- If two _____ intersect, then their intersection is exactly _____.
- Through any _____ points there exists exactly _____.
- A plane contains at least three _____.
- If two points lie in a _____, then the line containing them lies in the _____.
- If two _____ intersect, then their intersection is a _____.

Which postulate allows you to say that the intersection of plane *P* and plane *Q* is a line?

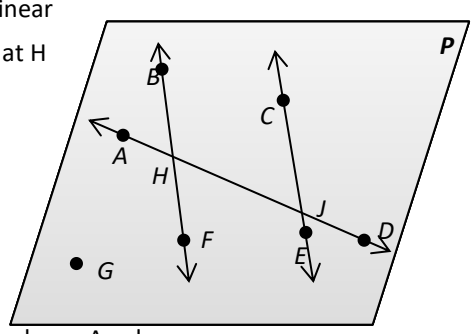


Use the diagram to write examples of the 1st three postulates.

Interpreting a Diagram

You Can Assume

- All points shown are coplanar
- $\angle AHB$ and $\angle BHD$ are a linear pair
- $\angle AHF$ and $\angle BHD$ are vertical angles
- *A*, *H*, *J*, and *D* are collinear
- $\overleftrightarrow{AD}$ and $\overleftrightarrow{BF}$ intersect at H



You Cannot Assume

- *G*, *F*, and *E* are collinear
- $\overleftrightarrow{BF}$ and $\overleftrightarrow{CE}$ intersect
- $\overleftrightarrow{BF}$ and $\overleftrightarrow{CE}$ do not intersect
- $\angle BHA \cong \angle CJA$
- $\overleftrightarrow{AD} \perp \overleftrightarrow{BF}$
- m$\angle AHB$ = 90°

Sketch a diagram showing $\overrightarrow{FH} \perp \overline{EG}$ at its midpoint *M*.

State whether each of the follow can be assumed.

A, B, and C are collinear

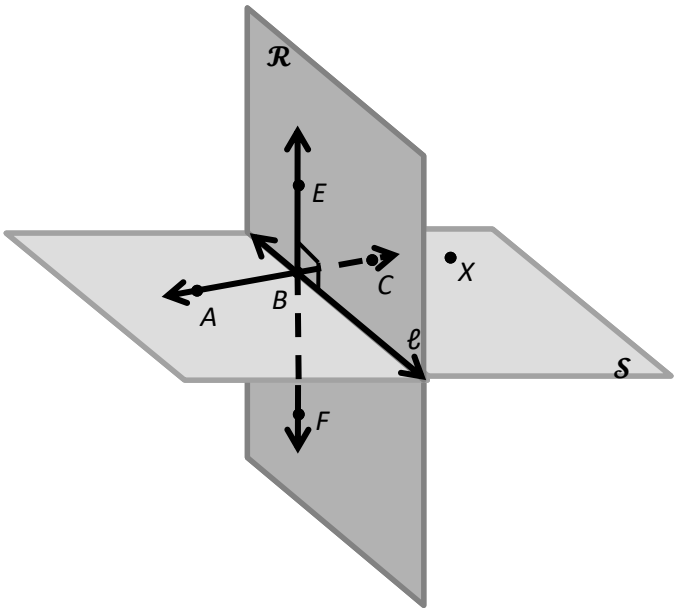
$\overleftrightarrow{EF} \perp$ line ℓ

$\overleftrightarrow{BC} \perp$ plane $\mathcal{R}$

$\overleftrightarrow{EF}$ intersects $\overleftrightarrow{AC}$ at *B*

line $\ell \perp \overleftrightarrow{AB}$

Points *B*, *C*, and *X* are collinear



Assignment: 85 #2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 21, 22, 23, 25, 26, 31, 32, 36, 38, 39 = 20 total