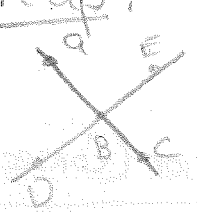


# Ch. 3: $\perp$ and $\parallel$ Lines

Chapter Goal: learn properties of  $\parallel$  and  $\perp$  lines  
 - 6 ways to prove that lines are  $\parallel$   
 - how to write an equation of a line given characteristics

Lesson objective - Identify relationships between lines  
 - Identify angles formed by transversals

Warm-up:

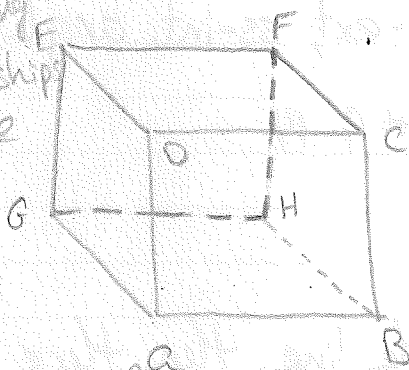


line containing C, ray with endpoint B containing A  
 Acute angle with vertex B containing C, segment with endpoint B containing E

Vocab

- Parallel lines - lines on the same plane that will never intersect
- Skew lines - lines that do not intersect but are non coplanar
- Parallel Planes - planes that do not intersect

Identifying Relationships in space



What is  $\parallel$  to  $\overline{DC}$ ?  
 to  $\overline{AG}$

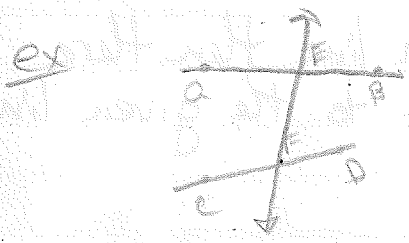
What is skew to  $\overline{HB}$ ?  
 $\overline{EF}$

Name a plane  $\parallel$  to Plane HBA

Now try #'s 1-8

Identifying Angles formed by transversals

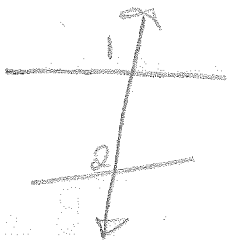
A transversal is a line that passes through two coplanar lines at different points



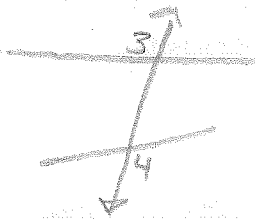
$\overleftrightarrow{EF}$  is the transversal

A transversal creates four types of angles

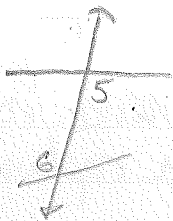
Corresponding Angles



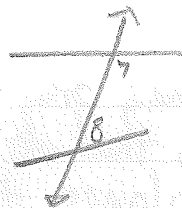
Alternate Exterior Angles



Alternate Interior Angle



Same-side Interior (Consecutive interior)



Now list all the corresponding, alt-int, alt-ext, ss-int. angles



Now try #9-14

Postulate 13 Parallel Postulate

If there is a line and a point not on the line, then there is exactly one line through the point  $\parallel$  to the given line



Postulate 14

If there is a line and a point not on the line, then there is exactly one line through the point  $\perp$  to the given line

