3.1 Practice Solutions

1) a pair of parallel planes
   PLANE JCDGF and PLANE ELHBA

2) all lines that are parallel to $\overrightarrow{AB}$
   $\overrightarrow{FG}$

3) all lines that are parallel to $\overrightarrow{DH}$
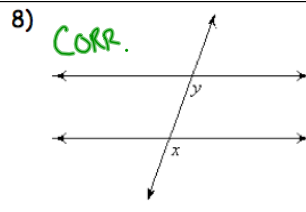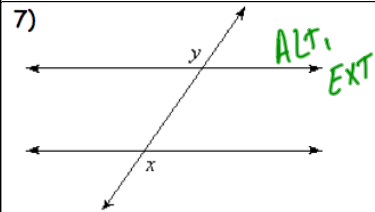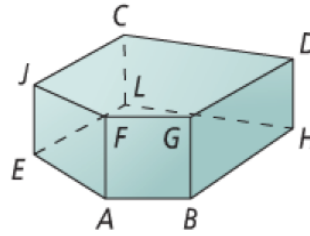 $\overleftrightarrow{CB}, \overleftrightarrow{FA}, \overleftrightarrow{JE}, \overleftrightarrow{CL}$

4) two lines that are skew to $\overleftrightarrow{EJ}$
   $\overleftrightarrow{CD}, \overleftrightarrow{CH}, \overleftrightarrow{GD}, \overleftrightarrow{BH}, \overleftrightarrow{AB}, \overleftrightarrow{FG}$

5) all lines that are parallel to plane JFAE
   NONE

6) a plane parallel to $\overleftrightarrow{LH}$ PLANE JCDGF

7) ALT. EXT

8) CORR.

9) ALT. INT.

10) ALT. EXT.

11) SAME-SIDE INT

12) SAME-SIDE INTERIOR
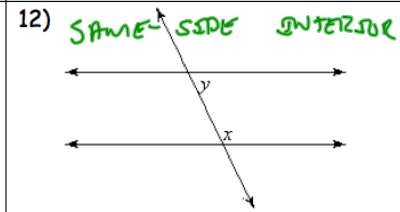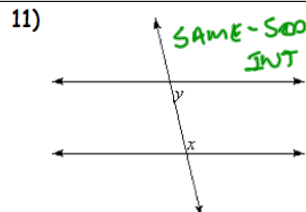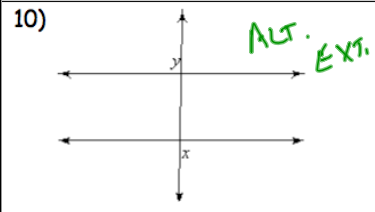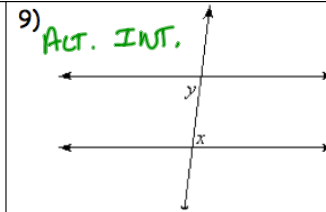
Directions: Identify all pairs of each type of angles in the diagram. Name the two lines and the transversal that form each pair.

13) corresponding angles
   ∠7 + ∠6   a||b → d is transversal

14) alternate interior angles
   ∠3+4 + ∠5   d||e → b is transversal

15) alternate exterior angles
   ∠8 and ∠6   a||b → d is transversal

16) same-side interior angles
   ∠7 and ∠1+2   d||e → a is transversal
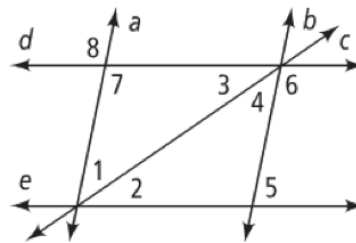
Directions: Determine whether each statement is always, sometimes or never true.

17) Two parallel lines are coplanar
   ALWAYS

18) Two skew lines are coplanar
   NEVER

19) Two planes that do not intersect are parallel
   ALWAYS

20) Two lines in intersecting planes are skew
   SOMETIMES

21) A line and a plane that do not intersect are skew
   NEVER

22) Alternate interior angles are on the same side of a transversal
   NEVER