LT 1.1 Parallel Lines and Transversal

Homework: Complete #13-20 odd

Honors: Complete #13-20 odd

Practice and Problem Solving

Extra Practice is on page R3.

Example 1 Refer to the figure to identify each of the following.

13. all segments parallel to $\overline{DM}$

14. a plane parallel to plane ACD

15. a segment skew to $\overline{BC}$

16. all planes intersecting plane EDM

17. all segments skew to $\overline{AE}$

18. a segment parallel to $\overline{EN}$

19. a segment parallel to $\overline{AB}$ through point J

20. a segment skew to $\overline{CL}$ through point E
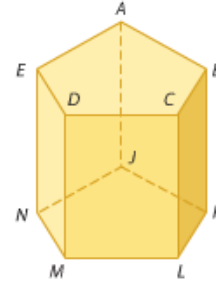
Examples 2–3 CCSS **PRECISION** Identify the transversal connecting each pair of angles. Then classify the relationship between each pair of angles as *alternate interior, alternate exterior, corresponding,* or *consecutive interior* angles.

21. ∠4 and ∠9	22. ∠5 and ∠7
23. ∠3 and ∠5	24. ∠10 and ∠11
25. ∠1 and ∠6	26. ∠6 and ∠8
27. ∠2 and ∠3	28. ∠9 and ∠10
29. ∠4 and ∠11	30. ∠7 and ∠11
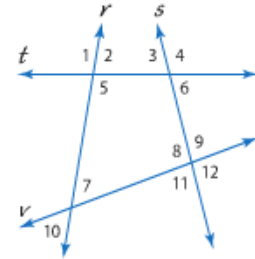
Example 3 **SAFETY** Identify the transversal connecting each pair of angles in the photo of a fire escape shown. Then classify the relationship between each pair of angles.

31. ∠1 and ∠2	32. ∠2 and ∠4
33. ∠4 and ∠5	34. ∠6 and ∠7
35. ∠7 and ∠8	36. ∠2 and ∠3

37. **POWER** Power lines are not allowed to intersect.

   a. What must be the relationship between power lines p and m? Explain your reasoning.

   b. What is the relationship between line q and lines p and m?

46. OPEN ENDED Plane *P* contains lines *a* and *b*. Line *c* intersects plane *P* at point *J*. Lines *a* and *b* are parallel, lines *a* and *c* are skew, and lines *b* and *c* are not skew. Draw a figure based upon this description.

47. CHALLENGE Suppose points *A*, *B*, and *C* lie in plane *P*, and points *D*, *E*, and *F* lie in plane *Q*. Line *m* contains points *D* and *F* and does not intersect plane *P*. Line *n* contains points *A* and *E*.

    a. Draw a diagram to represent the situation.

    b. What is the relationship between planes *P* and *Q*?

    c. What is the relationship between lines *m* and *n*?

REASONING Plane *X* and plane *Y* are parallel and plane *Z* intersects plane *X*. Line $\overleftrightarrow{AB}$ is in plane *X*, line $\overleftrightarrow{CD}$ is in plane *Y*, and line $\overleftrightarrow{EF}$ is in plane *Z*. Determine whether each statement is *always*, *sometimes*, or *never* true. Explain.

48. $\overleftrightarrow{AB}$ is skew to $\overleftrightarrow{CD}$.
                      49. $\overleftrightarrow{AB}$ intersects $\overleftrightarrow{EF}$.

50. 📘 **WRITING IN MATH** Can a pair of planes be described as skew? Explain.