LT 1.1 Parallel Lines and Transversal

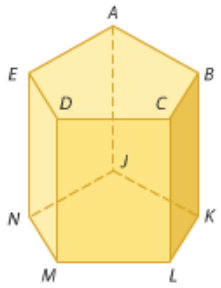
Homework: Complete #21-37 odd

Honors: Complete #25-37 odd, #46-49 all

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

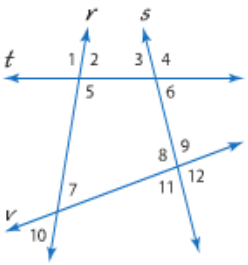
17. all segments skew to $\overline{AE}$

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. $\angle 4$ and $\angle 9$

22. $\angle 5$ and $\angle 7$

23. $\angle 3$ and $\angle 5$

24. $\angle 10$ and $\angle 11$

25. $\angle 1$ and $\angle 6$

26. $\angle 6$ and $\angle 8$

27. $\angle 2$ and $\angle 3$

28. $\angle 9$ and $\angle 10$

29. $\angle 4$ and $\angle 11$

30. $\angle 7$ and $\angle 11$

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. $\angle 1$ and $\angle 2$

32. $\angle 2$ and $\angle 4$

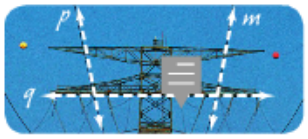
33. $\angle 4$ and $\angle 5$

34. $\angle 6$ and $\angle 7$

35. $\angle 7$ and $\angle 8$

36. $\angle 2$ and $\angle 3$

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.