

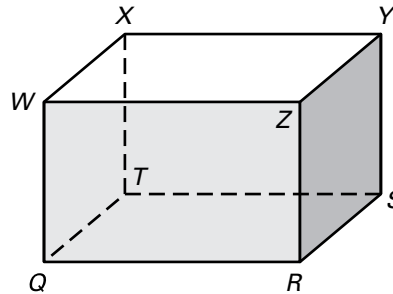
LESSON 3.1

Practice B

For use with pages 150–156

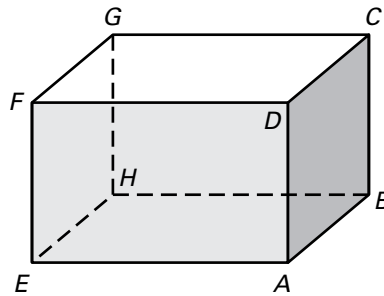
Think of each segment in the diagram as part of a line. Complete the statement with *parallel*, *skew*, or *perpendicular*.

- \overleftrightarrow{WZ} and \overleftrightarrow{ZR} are ?
- \overleftrightarrow{WZ} and \overleftrightarrow{ST} are ?
- \overleftrightarrow{QT} and \overleftrightarrow{YS} are ?
- Plane WZR and plane SYZ are ?
- Plane RQT and plane YXW are ?



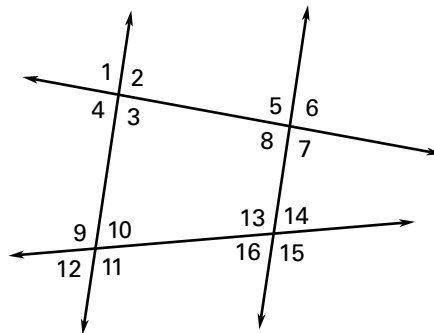
Think of each segment in the diagram as part of a line. Which line(s) or plane(s) appear to fit the description?

- Line(s) parallel to \overleftrightarrow{EH}
- Line(s) perpendicular to \overleftrightarrow{EH}
- Line(s) skew to \overleftrightarrow{CD} and containing point F
- Plane(s) perpendicular to plane AEH
- Plane(s) parallel to plane FGC



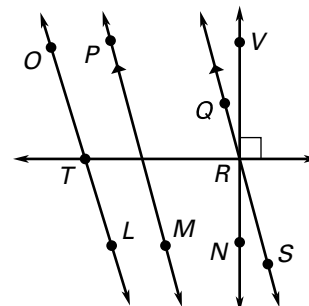
Classify the angle pair as *corresponding*, *alternate interior*, *alternate exterior*, or *consecutive interior* angles.

- $\angle 1$ and $\angle 9$
- $\angle 8$ and $\angle 13$
- $\angle 6$ and $\angle 16$
- $\angle 4$ and $\angle 10$
- $\angle 8$ and $\angle 16$
- $\angle 10$ and $\angle 13$



In Exercises 17–20, use the markings in the diagram.

- Name a pair of parallel lines.
- Name a pair of perpendicular lines.
- Is $\overleftrightarrow{OL} \parallel \overleftrightarrow{TR}$? Explain.
- Is $\overleftrightarrow{OL} \perp \overleftrightarrow{TR}$? Explain.



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LESSON 3.1

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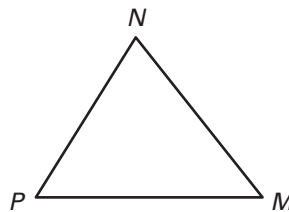
Practice B *continued*
For use with pages 150–156

Copy and complete the statement with *sometimes, always, or never*.

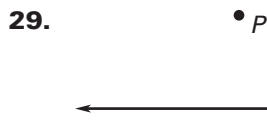
- 21. If two lines are parallel, then they ? intersect.
- 22. If one line is skew to another, then they are ? coplanar.
- 23. If two lines intersect, then they are ? perpendicular.
- 24. If two lines are coplanar, then they are ? parallel.

Copy the diagram and sketch the line.

- 25. Line through M and parallel to \overleftrightarrow{NP} .
- 26. Line through N and perpendicular to \overleftrightarrow{MP} .
- 27. Line through M and perpendicular to \overleftrightarrow{MP} .
- 28. Line through P and parallel to \overleftrightarrow{MN} .

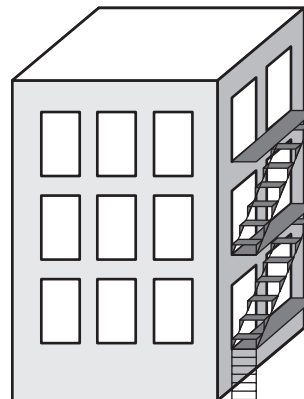


Use construction tools to construct a line through point P that is parallel to line m .



Use the diagram of the fire escape to decide whether the statement is *true or false*.

- 31. The planes containing the platforms outside of each pair of windows are parallel to the ground.
- 32. The planes containing the stairs are parallel to each other.
- 33. The planes containing the platforms outside of each pair of windows are perpendicular to the planes containing the stairs.
- 34. The planes containing the platforms outside of each pair of windows are perpendicular to the plane containing the side of the building with the fire escape.

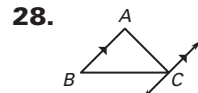
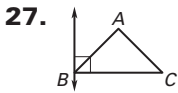
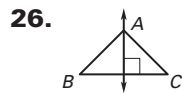
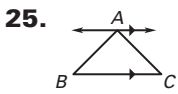


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Lesson 3.1

Practice Level A

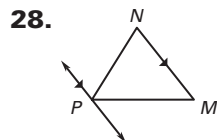
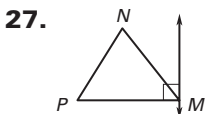
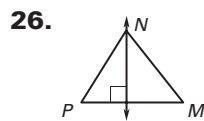
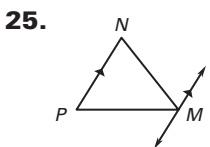
1. parallel 2. perpendicular 3. skew
 4. parallel 5. perpendicular 6. $\overleftrightarrow{DC}, \overleftrightarrow{HG}, \overleftrightarrow{EF}$
 7. $\overleftrightarrow{AB}, \overleftrightarrow{EF}, \overleftrightarrow{BC}, \overleftrightarrow{FG}$ 8. $\overleftrightarrow{AE}, \overleftrightarrow{EH}$ 9. plane ABC ,
 plane EFG , plane ADH , plane BCG 10. plane
 EFG 11. alternate interior 12. corresponding
 13. alternate interior 14. alternate exterior
 15. consecutive interior 16. alternate exterior
 17. $\overleftrightarrow{PM} \parallel \overleftrightarrow{OL}$ 18. $\overleftrightarrow{VN} \perp \overleftrightarrow{RT}$ 19. No; the lines
 intersect at R . 20. Yes; there is a right angle
 symbol shown. 21. sometimes 22. never
 23. always 24. sometimes



29. $\angle 1$ and $\angle 5$, $\angle 2$ and $\angle 6$, $\angle 3$ and $\angle 7$,
 $\angle 4$ and $\angle 8$ 30. $\angle 3$ and $\angle 5$, $\angle 4$ and $\angle 6$
 31. $\angle 1$ and $\angle 7$, $\angle 2$ and $\angle 8$ 32. $\angle 3$ and $\angle 6$,
 $\angle 4$ and $\angle 5$ 33. true 34. false 35. true
 36. false

Practice Level B

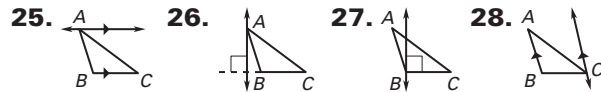
1. perpendicular 2. parallel 3. skew
 4. perpendicular 5. parallel 6. $\overleftrightarrow{FG}, \overleftrightarrow{DC}, \overleftrightarrow{AB}$
 7. $\overleftrightarrow{AE}, \overleftrightarrow{BH}, \overleftrightarrow{EF}, \overleftrightarrow{HG}$ 8. \overleftrightarrow{EF} 9. planes EFG ,
 ABC , ADF , and BCG 10. plane EHB
 11. corresponding 12. consecutive interior
 13. alternate exterior 14. alternate interior
 15. corresponding 16. consecutive interior
 17. $\overleftrightarrow{PM} \parallel \overleftrightarrow{QS}$ 18. $\overleftrightarrow{VN} \perp \overleftrightarrow{RT}$ 19. No; the lines
 intersect at T . 20. No; there is no right angle
 symbol shown. 21. never 22. never
 23. sometimes 24. sometimes



- 29–30. Check students' drawings. 31. true
 32. true 33. false 34. true

Practice Level C

1. parallel 2. perpendicular 3. skew
 4. parallel 5. perpendicular 6. $\overleftrightarrow{QW}, \overleftrightarrow{SY}, \overleftrightarrow{TZ}$
 7. $\overleftrightarrow{YZ}, \overleftrightarrow{ST}, \overleftrightarrow{QT}, \overleftrightarrow{WZ}$ 8. \overleftrightarrow{ST}
 9. plane TQW , plane SRX , plane ZWX ,
 plane SRQ 10. plane WXY
 11. corresponding 12. alternate exterior
 13. alternate interior 14. consecutive interior
 15. alternate exterior 16. alternate interior
 17. $\overleftrightarrow{OL} \parallel \overleftrightarrow{VN}$ 18. $\overleftrightarrow{VN} \perp \overleftrightarrow{RT}$
 19. No; the markings do not indicate that the lines
 are parallel 20. Yes; since \overleftrightarrow{OL} is parallel to \overleftrightarrow{VN}
 and \overleftrightarrow{VN} is perpendicular to \overleftrightarrow{TR} 21. sometimes
 22. never 23. always 24. never



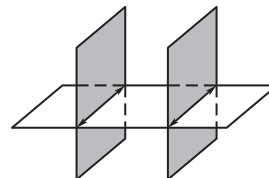
29. $\angle 6, \angle 10$ 30. $\angle 5, \angle 11$ 31. $\angle 1, \angle 8$
 32. $\angle 2$ 33. true 34. true 35. false

Review for Mastery

1. skew 2. parallel 3. parallel
 4. perpendicular 5. $\overleftrightarrow{AD}, \overleftrightarrow{EH}, \overleftrightarrow{DC}, \overleftrightarrow{HG}$
 6. plane ABE 7. \overleftrightarrow{FG} 8. $\overleftrightarrow{AE}, \overleftrightarrow{DH}, \overleftrightarrow{AD}, \overleftrightarrow{DC}, \overleftrightarrow{AB}$
 9. alternate interior 10. corresponding
 11. alternate exterior 12. consecutive interior

Challenge Practice

1. Yes. The two lines of intersection are coplanar, because they are both in the third plane. The two lines do not intersect, because they are in parallel planes. Because they are coplanar and do not intersect, they are parallel.



2. a seems to be parallel to c . If two lines are parallel to the same line, then they are parallel to each other.

