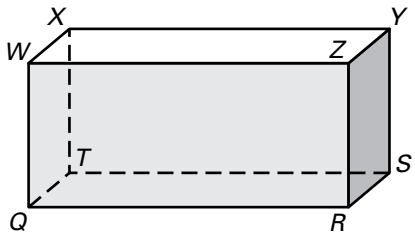
Name _____ Date _____

LESSON 3.1

Practice A

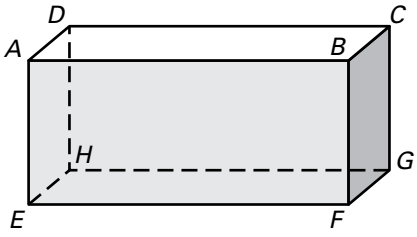
For use with pages 150–156

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



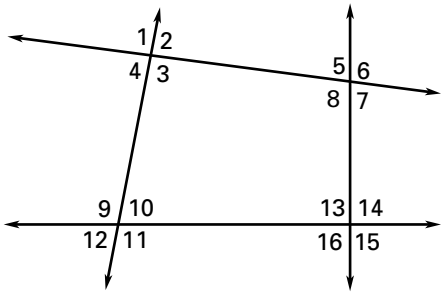
1. $\overleftrightarrow{WZ}$ and $\overleftrightarrow{XY}$ are __?__.
2. $\overleftrightarrow{WZ}$ and $\overleftrightarrow{QW}$ are __?__.
3. $\overleftrightarrow{SY}$ and $\overleftrightarrow{WX}$ are __?__.
4. Plane WQR and plane SYT are __?__.
5. Plane RQT and plane WQR are __?__.

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



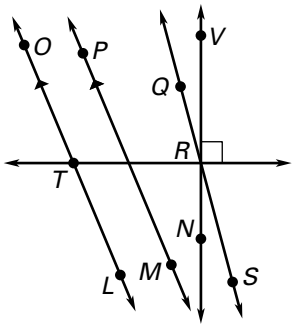
6. Line(s) parallel to $\overleftrightarrow{AB}$
7. Line(s) perpendicular to $\overleftrightarrow{BF}$
8. Line(s) skew to $\overleftrightarrow{CD}$ and containing point E
9. Plane(s) perpendicular to plane ABE
10. Plane(s) parallel to plane ABC

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



11. $\angle 3$ and $\angle 9$
12. $\angle 5$ and $\angle 13$
13. $\angle 4$ and $\angle 10$
14. $\angle 5$ and $\angle 15$
15. $\angle 7$ and $\angle 14$
16. $\angle 1$ and $\angle 11$

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



17. Name a pair of parallel lines.
18. Name a pair of perpendicular lines.
19. Is $\overleftrightarrow{QS} \parallel \overleftrightarrow{TR}$?
20. Is $\overleftrightarrow{VN} \perp \overleftrightarrow{TR}$?

Name _____ Date _____

LESSON 3.1

Practice A *continued*

For use with pages 150–156

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

21. If two lines are not parallel, then they __?__ intersect.

22. If one line is skew to another, then they __?__ intersect.

23. If two lines are perpendicular, then they __?__ intersect.

24. If two lines are coplanar, then they are __?__ perpendicular.

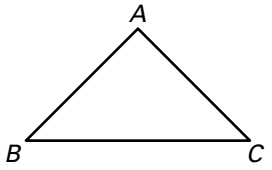
Copy the diagram and sketch the line.

25. Line through A and parallel to $\overleftrightarrow{BC}$.

26. Line through A and perpendicular to $\overleftrightarrow{BC}$.

27. Line through B and perpendicular to $\overleftrightarrow{BC}$.

28. Line through C and parallel to $\overleftrightarrow{AB}$.



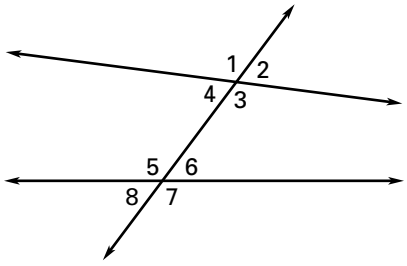
In Exercises 29–32, use the diagram.

29. Name all pairs of corresponding angles.

30. Name all pairs of alternate interior angles.

31. Name all pairs of alternate exterior angles.

32. Name all pairs of consecutive interior angles.



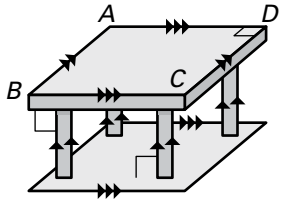
Use the diagram to decide whether the statement is *true* or *false*.

33. The plane containing the table top is parallel to the ground.

34. The planes containing the edges of each leg are parallel to the plane containing the table top.

35. Edge lines $\overleftrightarrow{AD}$ and $\overleftrightarrow{CD}$ are perpendicular to each other.

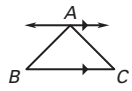
36. Edge lines $\overleftrightarrow{AD}$ and $\overleftrightarrow{BC}$ will intersect.

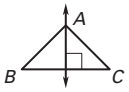


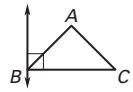
Lesson 3.1

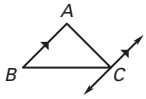
Practice Level A

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.** $\overline{VN} \perp \overline{RT}$ **19.** No; the lines intersect at *R*. **20.** Yes; there is a right angle symbol shown. **21.** sometimes **22.** never **23.** always **24.** sometimes

25. 

26. 

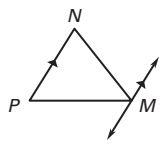
27. 

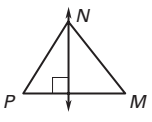
28. 

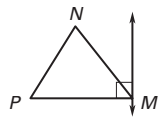
29. $\angle 1$ and $\angle 5$, $\angle 2$ and $\angle 6$, $\angle 3$ and $\angle 7$, $\angle 4$ and $\angle 8$ **30.** $\angle 3$ and $\angle 5$, $\angle 4$ and $\angle 6$ **31.** $\angle 1$ and $\angle 7$, $\angle 2$ and $\angle 8$ **32.** $\angle 3$ and $\angle 6$, $\angle 4$ and $\angle 5$ **33.**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

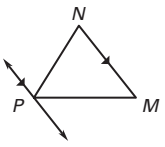
Practice Level B

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

25. 

26. 

27. 

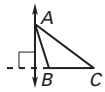
28. 

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

25. 

26. 

27. 

28. 

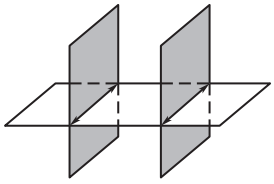
29. $\angle 6$, $\angle 10$ **30.** $\angle 5$, $\angle 11$ **31.** $\angle 1$, $\angle 8$
32. $\angle 2$ **33.** true **34.** true **35.** false

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.