LESSON 3.1 **Practice**
For use with pages 146–152

Think of each segment in the diagram as part of a line. Complete the statement with *parallel*, *skew*, or *perpendicular*.
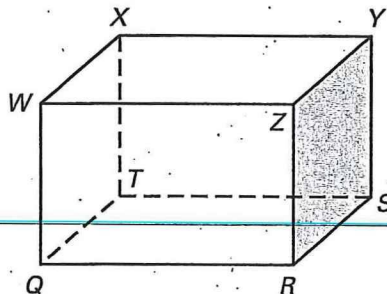
1. $\overleftrightarrow{WZ}$ and $\overleftrightarrow{ZR}$ are __?__ . ⊥

2. $\overleftrightarrow{WZ}$ and $\overleftrightarrow{ST}$ are __?__ . //

3. $\overleftrightarrow{QT}$ and $\overleftrightarrow{YS}$ are __?__ . skew

4. Plane *WZR* and plane *SYZ* are __?__ . ⊥

5. 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?

6. Line(s) parallel to $\overleftrightarrow{EH}$
   $\overleftrightarrow{AB}$, $\overleftrightarrow{FG}$, $\overleftrightarrow{CD}$

7. Line(s) perpendicular to $\overleftrightarrow{EH}$
   $\overleftrightarrow{EA}$, $\overleftrightarrow{HB}$, $\overleftrightarrow{FE}$, $\overleftrightarrow{GH}$

8. Line(s) skew to $\overleftrightarrow{CD}$ and containing point *F*
   $\overleftrightarrow{FE}$
   * the orange lines are parallel and coplanar with $\overleftrightarrow{CD}$ so they can't be skew
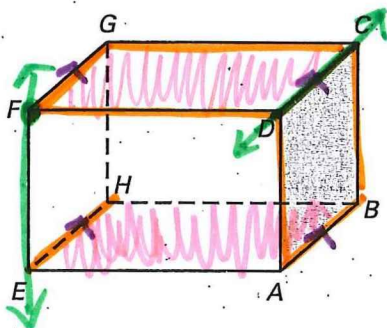
9. Plane(s) perpendicular to plane *AEH*
   Plane ABC, Plane DAE
   Plane BCG, Plane GFH
   ↳ floor (all planes but the ceiling are ⊥ to the floor)

10. Plane(s) parallel to plane *FGC*
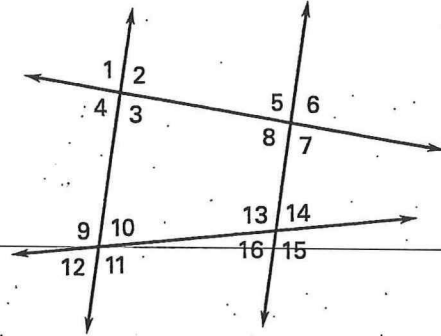   Plane ABH
    ↳ ceiling (the ceiling and floor are parallel)

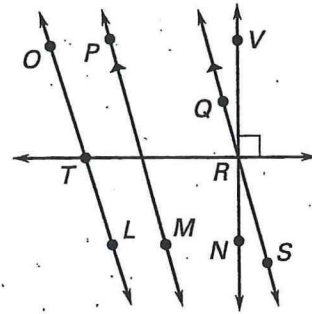**LESSON 3.1** **Practice** *continued*
For use with pages 146–152

Classify the angle pair as *corresponding, alternate interior, alternate exterior,* or *consecutive interior* angles. CA   AI   AE   CI or SSI

11. ∠1 and ∠9   **CA**

12. ∠8 and ∠13   **CI or SSI**

13. ∠6 and ∠16   **AE**

14. ∠4 and ∠10   **AI**

15. ∠8 and ∠16   **CA**

16. ∠10 and ∠13   **CI or SSI**

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

17. Name a pair of parallel lines.
$\overleftrightarrow{PM} \parallel \overleftrightarrow{QS}$

18. Name a pair of perpendicular lines.
$\overleftrightarrow{TR} \perp \overleftrightarrow{VN}$

19. Is $\overleftrightarrow{OL} \parallel \overleftrightarrow{TR}$? *Explain.*
NO, they intersect

20. Is $\overleftrightarrow{OL} \perp \overleftrightarrow{TR}$? *Explain.*
NO, they do not form a ⌐

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

21. If two lines are parallel, then they __?__ intersect.   **Never**

22. If one line is skew to another, then they are __?__ coplanar.   **Never**

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

24. If two lines are coplanar, then they are __?__ parallel.   **sometimes**

LESSON
3.1

Practice continued
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Copy the diagram and sketch the line.

25. Line through M and parallel to $\overleftrightarrow{NP}$.

   Purple

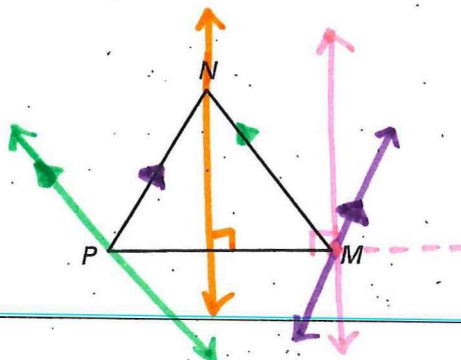26. Line through N and perpendicular to $\overleftrightarrow{MP}$.

   orange

27. Line through M and perpendicular to $\overleftrightarrow{MP}$.

   pink

28. Line through P and parallel to $\overleftrightarrow{MN}$.

   Green

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

29.   • P

                        m

30.   • P

                        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.