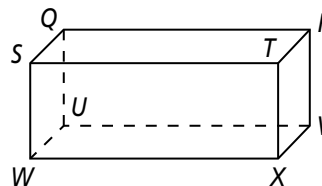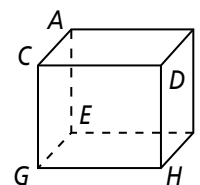# Practice

Form G

Lines and Angles

Use the diagram to name each of the following.

1. a pair of parallel planes **one of the following pairs: QRTS, UVXW; QUWS, RVXT; STXW, QRVU**

2. all lines that are parallel to $\overleftrightarrow{RV}$

   $\overleftrightarrow{TX}, \overleftrightarrow{QU}, \overleftrightarrow{SW}$

3. four lines that are skew to $\overleftrightarrow{WX}$

   Answers may vary. Sample: $\overleftrightarrow{TR}, \overleftrightarrow{QS}, \overleftrightarrow{RV}, \overleftrightarrow{QU}$

4. all lines that are parallel to plane $QUVR$

   Answers may vary. Sample: $\overleftrightarrow{ST}, \overleftrightarrow{TX}, \overleftrightarrow{WX}, \overleftrightarrow{SW}$

5. a plane parallel to plane $QUWS$

   RVXT

In Exercises 6–11, describe the statement as *true* or *false*. If false, explain.

6. $\overleftrightarrow{AE}$ and $\overleftrightarrow{EF}$ are skew lines.

   False; $\overleftrightarrow{AE}$ **and** $\overleftrightarrow{EF}$ **intersect.**

7. plane $DBF \parallel$ plane ABD

   False; the planes intersect.

8. $\overleftrightarrow{GH} \parallel \overleftrightarrow{EF}$ **true**

9. $\overleftrightarrow{DB} \parallel \overleftrightarrow{AE}$

   False; the lines are skew because they are noncoplanar.

10. plane $EFH \parallel$ plane ABD **true**

11. $\overleftrightarrow{FH}$ and $\overleftrightarrow{CD}$ are skew lines. **true**

12. You are driving over a bridge that runs east to west. Below the bridge, a highway runs north to south. Are the bridge and the highway *parallel, skew,* or *neither?* Explain.
   Skew; because the bridge is above the highway and they run in different directions, they are noncoplanar and cannot intersect.

13. **Open-Ended** List parts of your classroom that fit each description below.
   a. parallel to the top of a window
      Sample: bottom of the window
   b. skew with one side of the door
      Sample: top of the chalkboard
   c. parallel to the plane of the floor
      Sample: plane of the ceiling

14. **Reasoning** Your friend says that the sides of a ladder and the rungs of a ladder are skew. Is this true? Explain.
   No; the rungs of a ladder and the sides of a ladder intersect. Skew lines do not intersect.

15. **Visualization** If two planes are parallel, must all lines within those planes be parallel? Explain.
   Answers may vary. Sample: No; even if the planes are parallel, the lines could be skew. It depends upon the direction of the lines.
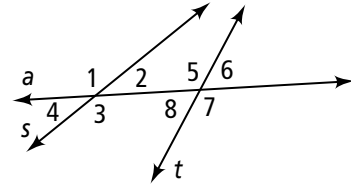
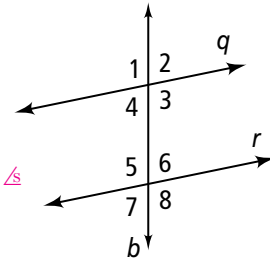## Practice (continued)   *Form G*

Lines and Angles

Identify all pairs of each type of angle in the diagram below right.

16. corresponding angles
∠1 and ∠5; ∠2 and ∠6; ∠4 and ∠8; ∠3 and ∠7

17. same-side interior angles
∠2 and ∠5; ∠3 and ∠8

18. alternate interior angles
∠3 and ∠5; ∠2 and ∠8
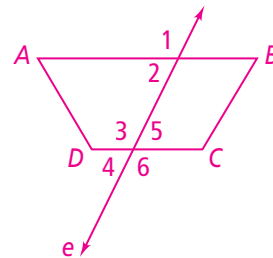
19. alternate exterior angles
∠1 and ∠7; ∠4 and ∠6

**Decide whether the angles are *alternate interior angles,
same-side interior angles, corresponding angles,* or
*alternate exterior angles.***

20. ∠2 and ∠7 **alt. ext. ∠s**

21. ∠5 and ∠4
same-side int. ∠s

22. ∠8 and ∠3 **corr. ∠s**

23. ∠6 and ∠4
alt. int. ∠s

24. ∠1 and ∠5 **corr. ∠s**

25. Draw a Diagram Line *e* intersects trapezoid *ABCD*. Sketch a diagram that
meets the following conditions.

a. $\overleftrightarrow{AB}$ and $\overleftrightarrow{DC}$ are parallel. **Answers may vary. Sample:**

b. ∠1 and ∠6 are alternate exterior angles.

c. ∠2 and ∠3 are same-side interior angles.

d. ∠4 and ∠5 are each supplementary to ∠3.

26. Writing Describe three real-world objects that represent two lines
intersected by a transversal. **Answers may vary. Samples: The sides of window panes
are parallel lines intersected by the transversal of the center strip. Train track ties
are transversals intersecting the parallel rails. In a bridge framework, the crosspieces
intersect parallel and non-parallel lines.**

27. The map at the right shows the intersection
of Maple Street and Oak Street by Main
Street. Name the angle pairs represented
by the locations listed below.

a. town hall and gas station **same-side interior**

b. school and library **corresponding**

c. library and post office **alternate exterior**

d. school and gas station **alternate interior**