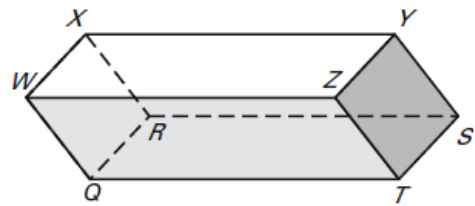


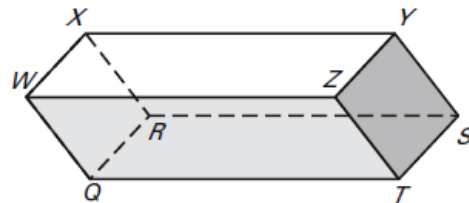
Think of each segment in the diagram as part of a line. Complete the statement with *parallel*, *perpendicular*, or *skew*.

- $\overleftrightarrow{WZ}$  and  $\overleftrightarrow{XY}$  are \_\_\_\_\_.
- $\overleftrightarrow{WZ}$  and  $\overleftrightarrow{YZ}$  are \_\_\_\_\_.
- $\overleftrightarrow{RS}$  and  $\overleftrightarrow{TZ}$  are \_\_\_\_\_.
- Plane  $WQR$  and plane  $SYT$  are \_\_\_\_\_.
- Plane  $RWQ$  and plane  $TQW$  are \_\_\_\_\_.



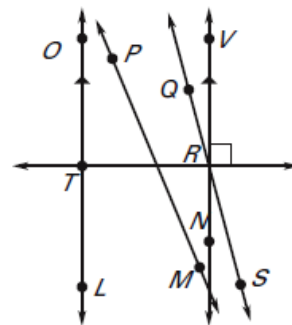
Think of each segment in the diagram as part of a line. Which line(s) or plane(s) appear to fit the description? (Name all possible answers!)

- Line(s) parallel to  $\overleftrightarrow{RX}$ .
- Line(s) perpendicular to  $\overleftrightarrow{TZ}$ .
- Line(s) skew to  $\overleftrightarrow{XY}$  and containing point S.
- Plane(s) perpendicular to plane  $STZ$ .
- Plane(s) parallel to plane  $QRS$ .



In exercises 11 – 14, use the markings in the diagram.

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

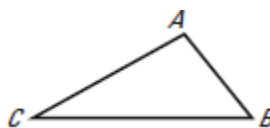


Complete the statement with *always*, *sometimes*, or *never*.

15. If two lines are not perpendicular, then they are \_\_\_\_\_ coplanar.
16. If two lines are coplanar, then they are \_\_\_\_\_ skew.
17. If three lines are coplanar and never intersect, then they are \_\_\_\_\_ parallel.
18. If two planes are parallel, then they \_\_\_\_\_ intersect.

How many lines can be drawn that fit each description? State the postulate that justifies your answer.

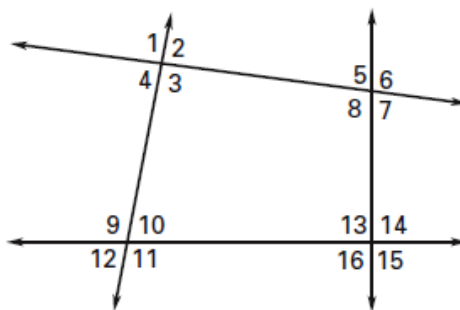
19. Lines through  $B$  parallel to  $\overleftrightarrow{AC}$ .



20. Lines through  $A$  perpendicular to  $\overleftrightarrow{BC}$ .

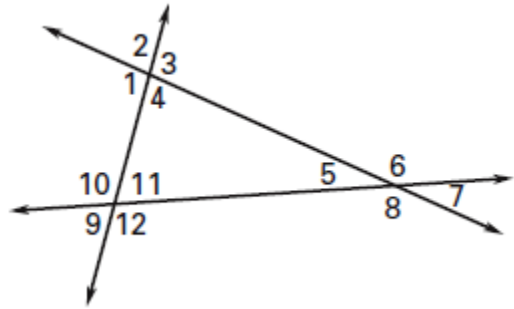
Classify the angle pair as *corresponding*, *alternate interior*, *alternate exterior*, or *consecutive interior angles*.

21.  $\angle 1$  and  $\angle 5$
22.  $\angle 4$  and  $\angle 6$
23.  $\angle 16$  and  $\angle 10$
24.  $\angle 11$  and  $\angle 16$
25.  $\angle 12$  and  $\angle 14$
26.  $\angle 7$  and  $\angle 13$



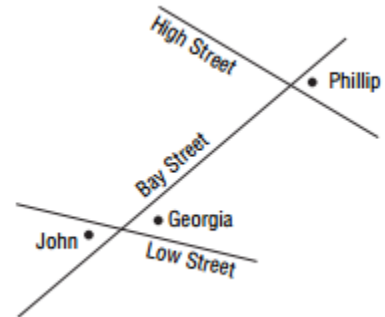
Complete each statement. List all possible answers.

27.  $\angle 2$  and  $\underline{\quad ? \quad}$  are corresponding angles.
28.  $\angle 4$  and  $\underline{\quad ? \quad}$  are consecutive interior angles.
29.  $\angle 11$  and  $\underline{\quad ? \quad}$  are alternate interior angles.
30.  $\angle 12$  and  $\underline{\quad ? \quad}$  are alternate exterior angles.



Use the following figure to complete 31 – 32.

31. Connor lives at the angle that forms an alternate interior angle with Georgia's residence. Add Connor to the map.
32. Quincy lives at the angle that forms a consecutive interior angle with Connor's residence. Add Quincy to the map.



**Answer Key**

1. Parallel
2. Perpendicular
3. Skew
4. Parallel
5. Perpendicular
6.  $\overleftrightarrow{QW}, \overleftrightarrow{SY}, \overleftrightarrow{TZ}$
7.  $\overleftrightarrow{YZ}, \overleftrightarrow{ST}$
8.  $\overleftrightarrow{RQ}, \overleftrightarrow{QW}, \overleftrightarrow{ST}, \overleftrightarrow{TZ}$
9. plane  $TQW$ , plane  $SRX$ , plane  $ZWX$ , plane  $SRX$
10. plane  $WXY$
11.  $\overleftrightarrow{OL} \parallel \overleftrightarrow{VN}$
12.  $\overleftrightarrow{VN} \perp \overleftrightarrow{RT}$
13. No, the markings do not indicate that the lines are parallel
14. Yes, since  $\overleftrightarrow{OL} \parallel \overleftrightarrow{VN}$ , and  $\overleftrightarrow{VN} \perp \overleftrightarrow{RT}$ , then  $\overleftrightarrow{OL} \perp \overleftrightarrow{RT}$
15. Sometimes
16. Never
17. Always
18. Never
19. One; parallel postulate
20. One; perpendicular postulate
21. Corresponding
22. Alternate exterior
23. Alternate interior
24. Consecutive interior
25. Alternate exterior
26. Alternate interior
27.  $\angle 6, \angle 10$
28.  $\angle 5, \angle 11$
29.  $\angle 1, \angle 8$
30.  $\angle 2, \angle 6$
- 31 and 32:

