

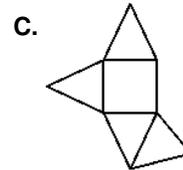
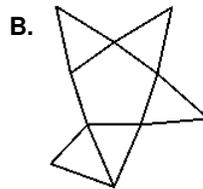
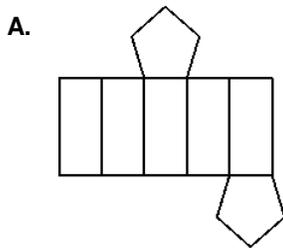
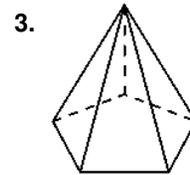
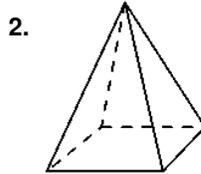
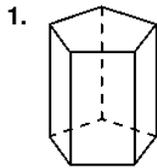
1-1

Practice

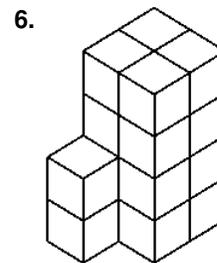
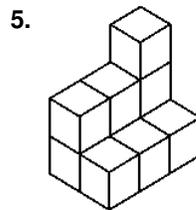
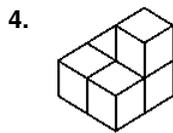
Form G

Nets and Drawings for Visualizing Geometry

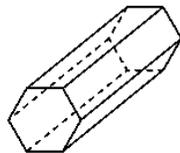
Match each three-dimensional figure with its net.



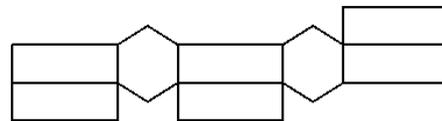
Make an isometric drawing of each cube structure on isometric dot paper.



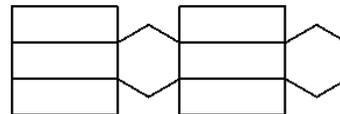
7. **Error Analysis** Two students draw nets for the solid shown below. Who is correct, Student A or Student B? Explain.



Student A:



Student B:



8. You want to make a one-piece cardboard cutout for a child to fold and tape together to make a dollhouse. It includes a floor, a complete roof, and four walls. Draw a net for the dollhouse.

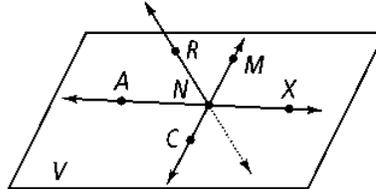
1-2

Practice

Form G

Points, Lines, and Planes

Use the figure below for Exercises 1–8. Note that \overleftrightarrow{RN} pierces the plane at N . It is not coplanar with V .



1. Name two segments shown in the figure.
2. What is the intersection of \overleftrightarrow{CM} and \overleftrightarrow{RN} ?
3. Name three collinear points.
4. What are two other ways to name plane V ?
5. Are points R , N , M , and X coplanar?
6. Name two rays shown in the figure.
7. Name the pair of opposite rays with endpoint N .
8. How many lines are shown in the drawing?

For Exercises 9–14, determine whether each statement is *always*, *sometimes*, or *never* true.

9. \overleftrightarrow{GH} and \overleftrightarrow{HG} are the same ray.
10. \overleftrightarrow{JI} and \overleftrightarrow{JL} are opposite rays.
11. A plane contains only three points.
12. Three noncollinear points are contained in only one plane.
13. If \overleftrightarrow{EG} lies in plane X , point G lies in plane X .
14. If three points are coplanar, they are collinear.
15. **Reasoning** Is it possible for one ray to be shorter in length than another? Explain.
16. **Open-Ended** Draw a figure of two planes that intersect in \overleftrightarrow{ST} .

1-2 Practice (continued)

Points, Lines, and Planes

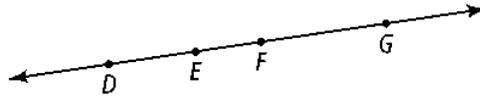
Form G

17. Draw a figure to fit each description.
- Through any two points there is exactly one line.
 - Two distinct lines can intersect in only one point.

18. **Reasoning** Point F lies on \overrightarrow{EG} and point M lies on \overrightarrow{EN} . If F , E , and M are collinear, what must be true of these rays?

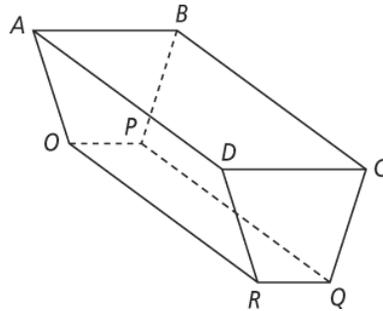
19. **Writing** What other terms or phrases mean the same as *postulate*?

20. How many segments can be named from the figure at the right?



Use the figure at the right for Exercises 21–29.
Name the intersection of each pair of planes or lines.

- planes ABP and BCD
- \overleftrightarrow{RQ} and \overleftrightarrow{RO}
- planes ADR and DCQ
- planes BCD and BCQ
- \overleftrightarrow{OP} and \overleftrightarrow{QP}



Name two planes that intersect in the given line.

- \overleftrightarrow{RO}
- \overleftrightarrow{CQ}
- \overleftrightarrow{DA}
- \overleftrightarrow{BP}

Coordinate Geometry Graph the points and state whether they are collinear.

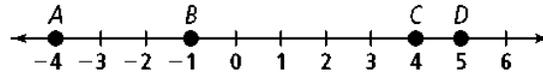
- $(0, 0), (4, 2), (6, 3)$
- $(-1, 1), (2, -2), (4, -3)$
- $(-2, 0), (0, 4), (2, 0)$
- $(0, 0), (6, 0), (9, 0)$
- $(1, 2), (2, 3), (4, 5)$
- $(-4, -1), (-1, -2), (2, -3)$

1-3 Practice

Form G

Measuring Segments

In Exercises 1–6, use the figure below. Find the length of each segment.



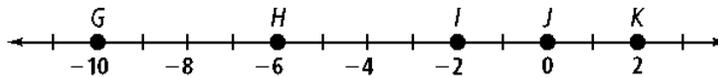
1. \overline{AB}
2. \overline{BC}
3. \overline{AC}
4. \overline{AD}
5. \overline{BD}
6. \overline{CD}

For Exercises 7–11, use the figure at the right.



7. If $PQ = 7$ and $QR = 10$, then $PR = \square$.
8. If $PQ = 20$ and $QR = 22$, then $PR = \square$.
9. If $PR = 25$ and $PQ = 12$, then $QR = \square$.
10. If $PR = 19$ and $QR = 12$, then $PQ = \square$.
11. If $PR = 10$ and $PQ = 4$, then $QR = \square$.

Use the number line below for Exercises 12–16. Tell whether the segments are congruent.



12. \overline{GH} and \overline{HI}
13. \overline{GH} and \overline{IK}
14. \overline{HJ} and \overline{IK}
15. \overline{IJ} and \overline{JK}
16. \overline{HJ} and \overline{GI}
17. \overline{HK} and \overline{GI}

18. **Reasoning** Points A, Q, and O are collinear. $AO = 10$, $AQ = 15$, and $OQ = 5$. What must be true about their positions on the line?

Algebra Use the figure at the right for Exercises 19 and 20.



19. Given: $ST = 3x + 3$ and $TU = 2x + 9$.
 - a. What is the value of ST ?
 - b. What is the value of TU ?
20. Given: $ST = x + 3$ and $TU = 4x - 6$.
 - a. What is the value of ST ?
 - b. What is the value of SU ?
21. **Algebra** On a number line, suppose point E has a coordinate of 3, $EG = 6$, and $EX = 12$. Is point G the midpoint of \overline{EX} ? What are possible coordinates for G and X ?

1-3

Practice (continued)

Form G

Measuring Segments

On a number line, the coordinates of P , Q , R , and S are -12 , -5 , 0 , and 7 , respectively.

22. Draw a sketch of this number line. Use this sketch to answer Exercises 23–26.

23. Which line segment is the shortest?

24. Which line segment is the longest?

25. Which line segments are congruent?

26. What is the coordinate of the midpoint of \overline{PR} ?

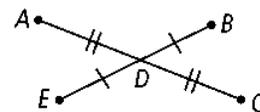
27. You plan to drive north from city A to town B and then continue north to city C. The distance between city A and town B is 39 mi, and the distance between town B and city C is 99 mi.

- Assuming you follow a straight driving path, after how many miles of driving will you reach the midpoint between city A and city C?
- If you drive an average of 46 mi/h, how long will it take you to drive from city A to city C?

28. **Algebra** Point O lies between points M and P on a line. $OM = 34z$ and $OP = 36z - 7$. If point N is the midpoint of \overline{MP} , what algebraic equation can you use to find MN ?

Algebra Use the diagram at the right for Exercises 29–32.

29. If $AD = 20$ and $AC = 3x + 4$, find the value of x . Then find AC and DC .



30. If $ED = 5y + 6$ and $DB = y + 30$, find the value of y . Then find ED , DB , and EB .

31. If $DC = 6x$ and $DA = 4x + 18$, find the value of x . Then find AD , DC , and AC .

32. If $EB = 4y - 12$ and $ED = y + 17$, find the value of y . Then find ED , DB , and EB .

33. **Writing** Is it possible that $PQ + QR < PR$? Explain.

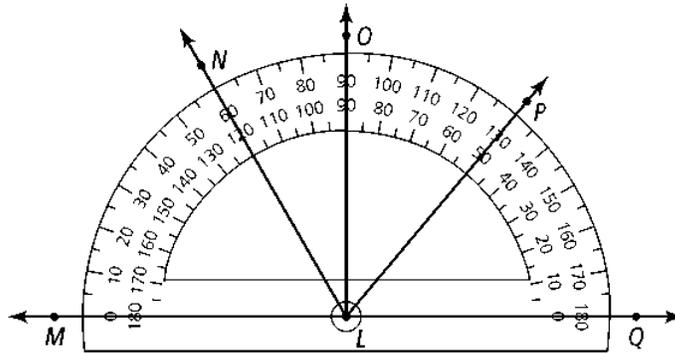
1-4 Practice

Measuring Angles

Form G

Use the diagram below for Exercises 1–11. Find the measure of each angle.

1. $\angle MLN$
2. $\angle NLP$
3. $\angle NLQ$
4. $\angle OLP$
5. $\angle MLQ$

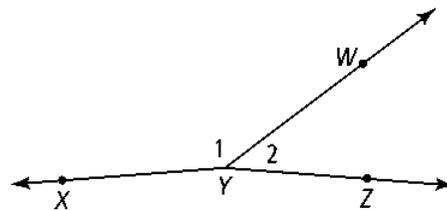


Classify each angle as *acute*, *right*, *obtuse*, or *straight*.

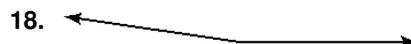
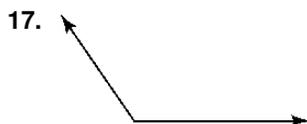
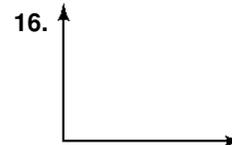
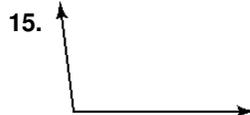
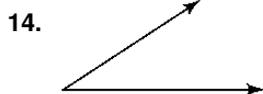
- | | | |
|-----------------|------------------|------------------|
| 6. $\angle MLN$ | 7. $\angle NLO$ | 8. $\angle MLP$ |
| 9. $\angle OLP$ | 10. $\angle OLQ$ | 11. $\angle MLQ$ |

Use the figure at the right for Exercises 12 and 13.

12. What is another name for $\angle XYW$?
13. What is another name for $\angle WYZ$?



Use a protractor. Measure and classify each angle.



1-4 Practice (continued)

Measuring Angles

Form G

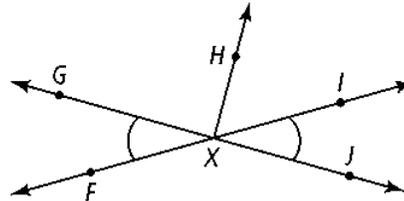
19. $\angle JKL$ and $\angle CDE$ are congruent. If $m\angle JKL = 137$, what is $m\angle CDE$?

Use the figure at the right for Exercises 20–

23. $m\angle FXH = 130$ and $m\angle FXG = 49$.

20. $\angle FXG \cong \square$

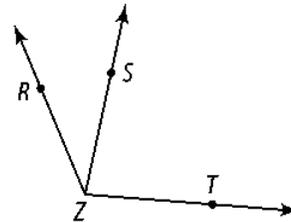
21. $m\angle GXH = \square$



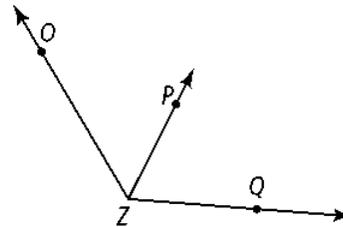
22. Name a straight angle in the figure.

23. $\angle IXJ \cong \square$

24. **Algebra** If $m\angle RZT = 110$, $m\angle RZS = 3s$, and $m\angle TZS = 8s$, what are $m\angle RZS$ and $m\angle TZS$?



25. **Algebra** $m\angle OZP = 4r + 2$, $m\angle PZQ = 5r - 12$, and $m\angle OZQ = 125$. What are $m\angle OZP$ and $m\angle PZQ$?



26. **Reasoning** Elsa draws an angle that measures 56. Tristan draws a congruent angle. Tristan says his angle is obtuse. Is he correct? Why or why not?

27. Lisa makes a cherry pie and an apple pie. She cuts the cherry pie into six equal wedges and she cuts the apple pie into eight equal wedges. How many degrees greater is the measure of a cherry pie wedge than the measure of an apple pie wedge?

28. **Reasoning** $\angle JNR$ and $\angle RNX$ are congruent. If the sum of the measures of the two angles is 180, what type of angle are they?

29. A new pizza place in town cuts their circular pizzas into 12 equal slices. What is the measure of the angle of each slice?