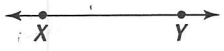
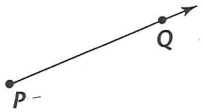
Chapter 1 Supplementary Problems

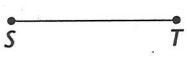
Tell whether each figure is a point, a line, a line segment, or a ray. Then use symbols to name each figure.

1. 

2. 

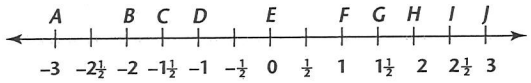
3. 

4. 

5. 

6. 

Use the Ruler Postulate to name the real number or letter corresponding to the point named.



7. A

8. -2

9. H

10. $2\frac{1}{2}$

11. $-1\frac{1}{2}$

12. J

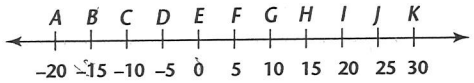
13. 1

14. E

15. G

16. -1

Find the distance between the points.



17. B and E

18. G and I

19. E and F

20. F and H

21. C and D

22. D and F

23. C and E

24. B and G

25. A and D

26. B and I

Chapter 1 Supplementary Problems

Write the letter of the answer to each question.

27. How many points are used to name a line?

A none **B** one **C** two

28. How many dimensions does a plane have?

A none **B** one **C** two

29. What geometric term can you use to describe beads on a string?

A points on a ray **B** points on a line segment **C** points on a line

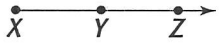
30. What are points on the same line called?

A collinear points **B** parallel points **C** endpoints

Name each figure in another way.

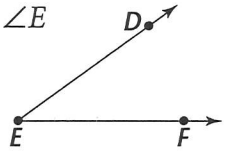
31. $\overleftrightarrow{AC}$

32. $\overrightarrow{XZ}$



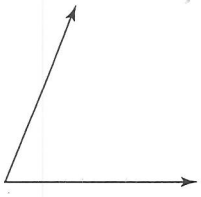
33. $\overline{QR}$

34. $\angle E$

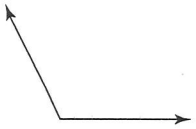


Copy each angle. Then bisect each angle using a compass and straightedge.

35.



36.



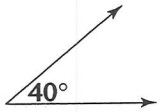
Chapter 1 Supplementary Problems

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

37. $m\angle DEF = 90°$

38. $m\angle XYZ < 90°$

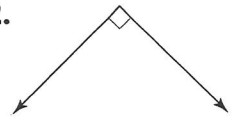
39.



40. $m\angle Q = 120°$

41. $m\angle 2 = 180°$

42.



Find the measure of each angle.

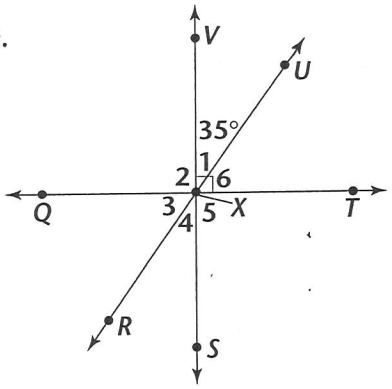
43. $m\angle 2$

44. $m\angle 6$

45. $m\angle 4$

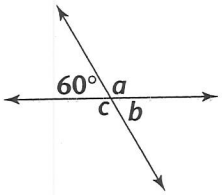
46. $m\angle 3$

47. $m\angle VXS$



Solve for the missing angle(s).

48.



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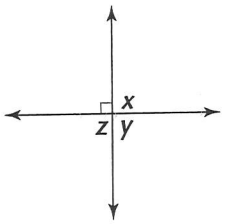

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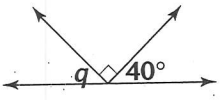


Chapter 2 Supplementary Problems

Copy each statement. Draw one line under the hypothesis. Circle the conclusion.

1. If an angle is a right angle, then its measure is 90°.
2. If an angle is a straight angle, then its measure is 180°.
3. If a figure is a quadrilateral, then it has 4 sides.
4. If two angles have equal measures, then they are congruent.
5. If an animal is an insect, then it has 6 legs.

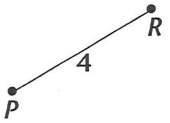
Write the converse of each conditional and tell whether it is true or false.

6. If a figure has three sides, then it is a triangle.
7. If two angles are supplementary, then the sum of their measures is 180°.
8. If it is raining, then the sun is not shining.
9. If you are a citizen of the United States, then you must pay taxes.

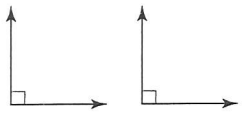
Decide which postulate allows the construction.

10. Connect the points with line segments to form a rectangle.

11. Draw circle P with radius 4.



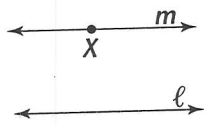
12. Draw two right angles equal to one another.



Chapter 2 Supplementary Problems

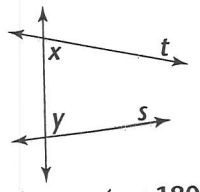
Decide which postulate allows the conclusion to be made.

13.



Conclusion: Line m is the only line that passes through point X and is parallel to line ℓ.

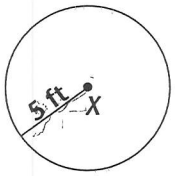
14.



$m\angle x + m\angle y < 180°$

Conclusion: Lines t and s are intersecting lines.

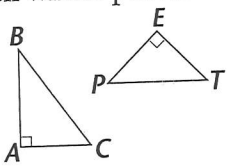
15.



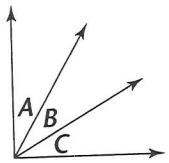
Conclusion: Circle X is shown with a radius of 5 feet.

Answer each question. Tell which postulate or axiom you used.

16. Is $m\angle A = m\angle E$?

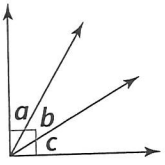


17. What is the measure of $\angle A$?



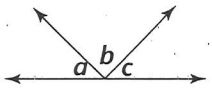
$m\angle A = m\angle C$
$m\angle B = m\angle C$
$m\angle B = 30°$

18. Which angles, or sum of angles, have a measure less than 90°?



Chapter 2 Supplementary Problems

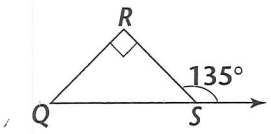
19. If $m\angle a + m\angle b = m\angle b + m\angle c$, does $m\angle a = m\angle c$?



20. If $4x + 16 = 56$, does $4x = 40$?

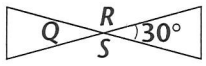
Find the measures of angles Q, R, and S.

21.

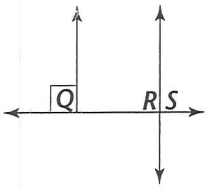


$m\angle Q = m\angle S$

22.

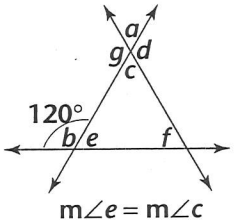


23.



$m\angle Q = m\angle R$

Give a reason for each of the following statements. Use the diagram at the right.



24. $m\angle e = m\angle c$

25. $m\angle a = m\angle c$

26. $m\angle e = 60°$

27. $m\angle b - m\angle c = m\angle b - m\angle a$

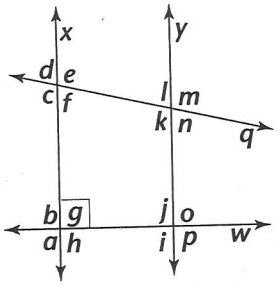
28. $m\angle f < 180°$

29. $m\angle c + m\angle d = 180°$

30. $m\angle e + m\angle f < 180°$

Chapter 3 Supplementary Problems

Use the figure to identify lines or angles as described below.



1. parallel line

2. transversal

3. a pair of acute, vertical angles

4. a pair of obtuse, vertical angles

5. intersecting lines

6. a pair of acute, alternate interior angles

Classify each pair of angles. Write *alternate interior, alternate exterior, corresponding,* or *supplementary.*

7. $\angle 1$ and $\angle 2$

8. $\angle 3$ and $\angle 7$

9. $\angle 4$ and $\angle 8$

10. $\angle 2$ and $\angle 6$

11. $\angle 6$ and $\angle 7$

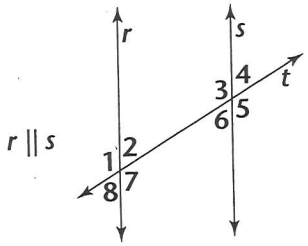
12. $\angle 1$ and $\angle 5$

13. $\angle 6$ and $\angle 8$

14. $\angle 2$ and $\angle 3$

15. $\angle 1$ and $\angle 3$

16. $\angle 1$ and $\angle 4$



Chapter 3 Supplementary Problems

Find the measure of each angle.

17. $\angle 2$

18. $\angle 9$

19. $\angle 4$

20. $\angle 6$

21. $\angle 11$

22. $\angle 12$

23. $\angle 16$

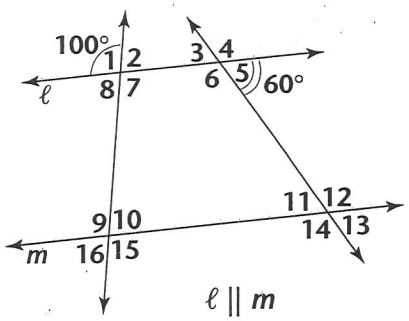
24. $\angle 13$

25. $\angle 8$

26. $\angle 10$

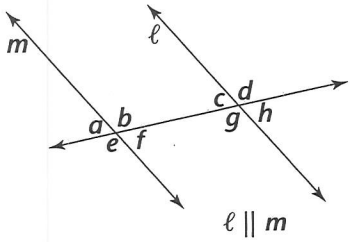
27. $\angle 3$

28. $\angle 14$



Use the theorems about parallel lines to find the measure of each angle.

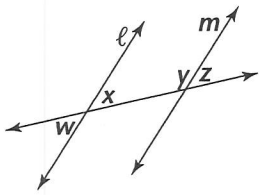
29. The measure of $\angle b$ is twice that of $\angle c$.



$m\angle b =$ ____

$m\angle c =$ ____

30. The measure of $\angle w$ is $\frac{1}{3}$ that of $\angle y$.



$m\angle w =$ ____

$m\angle y =$ ____

Chapter 3 Supplementary Problems

Use definitions and theorems to complete the statements.

31. $GA \parallel$ _____

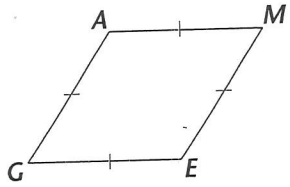
32. $\overline{EM} \cong$ _____

33. $\overline{AM} \parallel$ _____

34. $m\angle A + m\angle$ _____ $= 180°$

35. $m\angle M + m\angle$ _____ $= 180°$

36. $m\angle E \cong m\angle$ _____



Rhombus *GAME*

Complete the following constructions on a separate sheet of paper.
Use only a straightedge and a compass.

37. a square with a $1\frac{1}{2}$-inch base

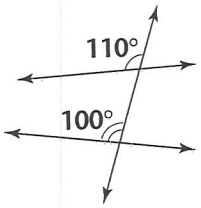
38. a rectangle with 3-in. and 5-in. sides

39. a trapezoid with a right angle, height of 1 in., and bases of 2 in. and 4 in.

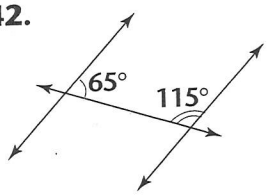
40. a trapezoid with no right angles

Write *parallel* or *not parallel* for each pair of lines crossed by a third line.

41.



42.



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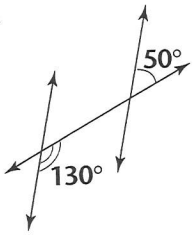

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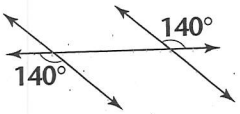
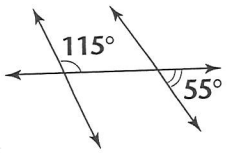


45.



Chapter 4 Supplementary Problems

Name the ordered pair that corresponds to each point.

1. G

2. A

3. C

4. J

5. F

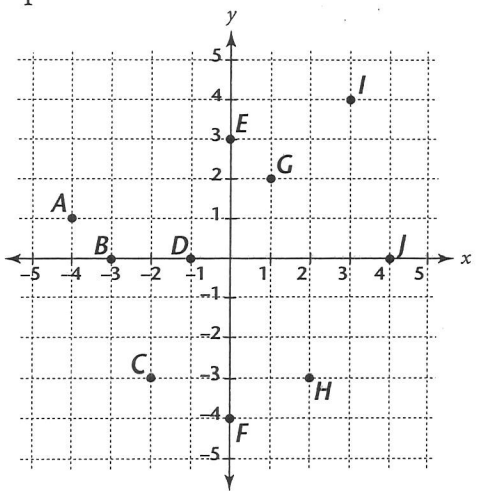
6. I

7. D

8. H

9. B

10. E



Name the point located at each ordered pair.

11. $(1, 0)$

12. $(4, -3)$

13. $(3, 0)$

14. $(-3, 1)$

15. $(-2, -2)$

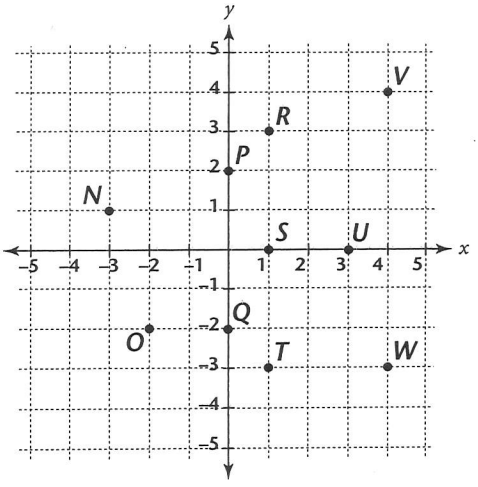
16. $(1, 3)$

17. $(4, 4)$

18. $(0, 2)$

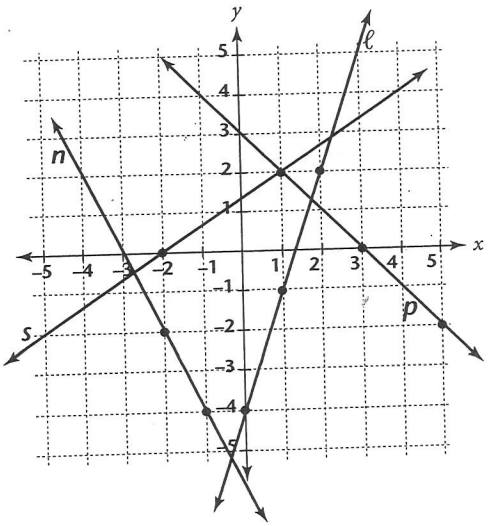
19. $(1, -3)$

20. $(0, -2)$



Chapter 4 Supplementary Problems

Find the slope, m, of each line.



21. line ℓ

22. line s

23. line n

24. line p

Find the slope, m, of the line that passes through the given points.

25. (1, 2) and (0, 0)

26. (3, 0) and (2, 0)

27. (8, 3) and (4, 1)

28. (4, 0) and (2, 2)

29. $(-3, -3)$ and (5, 2)

30. (10, −6) and (1, −6)

Write the equation of the line that passes through each pair of points in problems 25–30 above. Use the form $y = mx + b$.

31. problem 25

32. problem 26

33. problem 27

34. problem 28

35. problem 29

36. problem 30

Find another point on each line using the slope and point given.

37. ℓ; $m = 3$; passes through $(-2, 4)$

38. t; $m = \frac{2}{5}$; passes through $(1, -4)$

39. r; $m = -2$; passes through $(-1, 3)$

40. q; $m = -\frac{3}{4}$; passes through $(0, 0)$

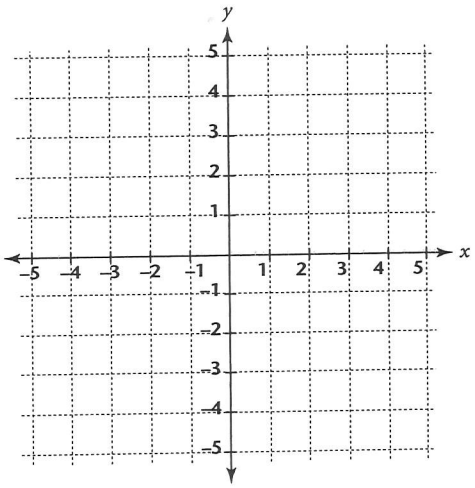
Make a grid and graph each of the lines described in problems 37–40 above. Connect the points with a line.

41. line ℓ

42. line t

43. line r

44. line q



Use the midpoint formula to find the midpoints of line segments having the following endpoints.

45. $(1, 1)$ and $(5, 7)$

46. $(3, 4)$ and $(-1, 2)$

47. $(8, -3)$ and $(-2, 5)$

48. $(12, 8)$ and $(6, -4)$

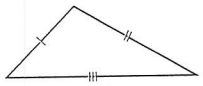
49. $(0, 6)$ and $(4, 0)$

50. $(1, 5)$ and $(-6, 7)$

Chapter 5 Supplementary Problems

Name the polygon as precisely as you can.

1.



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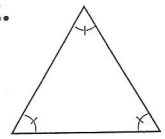

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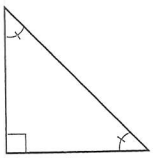

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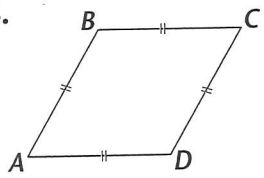

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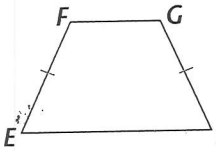
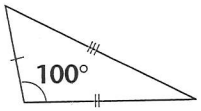


$\overline{FG} \parallel \overline{EH}$

6.



Complete the following constructions on a separate sheet of paper. Use only a straightedge and a compass.

7. Construct an equilateral triangle.

8. Draw any scalene triangle and label the angles X, Y, and Z. Construct the altitude from X to $\overline{YZ}$.

9. Construct a scalene right triangle.

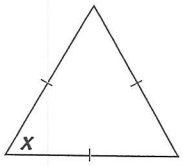
10. Construct a 30°-60° right triangle.

11. Construct ΔLMN with $LM = LN$ and $m\angle L > 90°$.

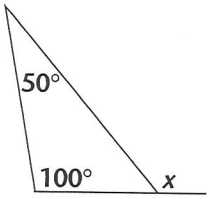
Chapter 5 Supplementary Problems

Find the measure of $\angle x$.

12.



13.



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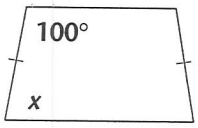

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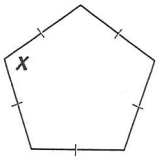
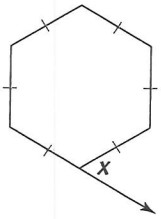
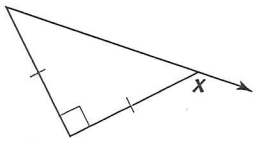


16.



17.



Use the information given to find the angles' measures.

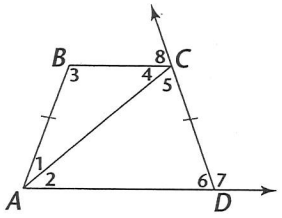
18. m∠2

19. m∠3

20. m∠8

21. m∠5

22. m∠4



ABCD is an isosceles trapezoid
m∠7 = 110°
m∠1 = 30°

Chapter 5 Supplementary Problems

Answer the questions.

23. What is an altitude?

24. What is the sum of the measures of the interior angles of a regular octagon?

25. What is the measure of each angle in an equilateral triangle?

26. What is the measure of each interior angle of a 9-sided regular polygon?

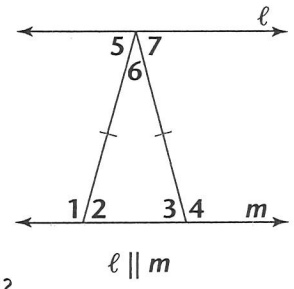
27. How can you find the measure of an exterior angle of a triangle?

28. Is a trapezoid a parallelogram? Why or why not?

29. How can you find the number of triangles formed in a polygon by the diagonals from one vertex?

30. What is a median?

Use the information given to answer the questions.



$\ell \parallel m$

31. Which angles are congruent to $\angle 2$?

32. If $m\angle 6 = 40°$, what is the sum of $m\angle 5$ and $m\angle 7$?

33. If $m\angle 2 = 70°$ and $m\angle 4 = 110°$, what is $m\angle 6$?

34. Which angle measure equals the sum of $m\angle 6$ and $m\angle 2$?

35. Are $\angle 1$ and $\angle 4$ exterior angles? Why or why not?