

Chapter 1

Chapter Review

Vocabulary Review

- | | | |
|------------------------------|--------------------------------|------------------------------|
| acute angle (p. 37) | counterexample (p. 5) | plane (p. 17) |
| adjacent angles (p. 38) | foundation drawing (p. 11) | point (p. 17) |
| angle (p. 36) | inductive reasoning (p. 4) | postulate (p. 18) |
| angle bisector (p. 46) | isometric drawing (p. 10) | ray (p. 23) |
| axiom (p. 18) | line (p. 17) | right angle (p. 37) |
| collinear points (p. 17) | midpoint (p. 32) | segment (p. 23) |
| compass (p. 44) | net (p. 12) | skew lines (p. 24) |
| complementary angles (p. 38) | obtuse angle (p. 37) | space (p. 17) |
| congruent angles (p. 37) | opposite rays (p. 23) | straight angle (p. 37) |
| congruent segments (p. 31) | orthographic drawing (p. 11) | straightedge (p. 44) |
| conjecture (p. 5) | parallel lines (p. 24) | supplementary angles (p. 38) |
| construction (p. 44) | parallel planes (p. 24) | vertical angles (p. 38) |
| coordinate (p. 31) | perpendicular bisector (p. 45) | |
| coplanar (p. 17) | perpendicular lines (p. 45) | |

Choose the correct term to complete each sentence.

- Figures that are in the same plane are coplanar.
- A(n) segment is the part of a line consisting of two endpoints and all points between them.
- Two segments with the same length are congruent.
- A(n) midpoint of a segment is a point that divides the segment into two congruent segments.
- A(n) angle bisector is a ray that divides an angle into two congruent angles.
- A conclusion based upon inductive reasoning is sometimes called a(n) conjecture.
- A(n) postulate or axiom is an accepted statement of fact.
- Parallel lines are coplanar lines that do not intersect.
- A(n) obtuse angle is an angle whose measure is between 90 and 180.

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Web Code: auj-0151

TEKS TAKS Skills and Concepts

Lesson 1-1

- (6.3)(C) To find counterexamples to disprove statements that are false
(6.3)(D) To use inductive reasoning to formulate a conjecture

You use **inductive reasoning** when you make conclusions based on patterns you observe. A **conjecture** describes a conclusion reached using inductive reasoning. A **counterexample** to a conjecture is an example for which the conjecture is incorrect.

Find a pattern for each sequence. Describe the pattern and use it to show the next two terms. 10-15. See margin.

- | | | |
|-------------------------|--------------------------|----------------------------|
| 10. 40, 35, 30, 25, ... | 11. 5, -5, 5, -5, ... | 12. 34, 27, 20, 13, 6, ... |
| 13. 6, 24, 96, 384, ... | 14. 2, 4, 8, 16, 32, ... | 15. 1, 2, 5, 6, 9, ... |

16. Draw the next figure in the sequence.
See left.



Chapter 1 Chapter Review

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- | | |
|--|---|
| 10. subtract 5; 20, 15 | 13. mult. by 4; 1536, 6144 |
| 11. Answers may vary.
Sample: mult. by -1;
5, -5 | 14. mult. by 2; 64, 128 |
| 12. subtr. 7; -1, -8 | 15. alternate adding 1 and 3;
10, 13 |

Chapter Review

TEKS TAKS Resources

Student Edition.
Extra Skills, Word Problems, Proof Practice, Ch. 1, p. 726
English/Spanish Glossary, p. 779
Properties and Formulas, p. 770
Table of Symbols, p. 763

Tune-Up Kit

- TAKS Daily Review Transparencies
- TAKS Review and Preparation Workbook
- TAKS Strategies with Transparencies
- Texas Progress Monitoring
- Texas ExamView CD-ROM
- Mindpoint Quiz Show

Differentiated Instruction

Vocabulary and Study Skills worksheet 1F
Spanish Vocabulary and Study Skills worksheet 1F
Texas Interactive Textbook Audio Glossary
Online Vocabulary Quiz
Success Tracker
Online at PHSchool.com

Spanish Vocabulary/Study Skills ELL

Vocabulary/Study Skills

"F" Vocabulary Review Puzzle For use with Chapter Review
Ready to review? Use this puzzle to review the vocabulary words from the chapter. Write the letter of the word that best fits the definition in the space provided. Remember to write the word in the space provided.

acute angle	congruent	complementary
adjacent	conjecture	coplanar
angle bisector	counterexample	orthographic drawing
axiom	deductive reasoning	parallel
collinear points	disprove	perpendicular
compass	draw	plane
construction	draw	point
coordinate	draw	postulate
coplanar	draw	ray
congruent	draw	segment
conjecture	draw	skew lines
counterexample	draw	space
deductive reasoning	draw	straight angle
disprove	draw	straightedge
draw	draw	supplementary angles
draw	draw	vertical angles

COLLINSBARTPGLZIPS
YIEZCCIOKRLIOGELK
CAFRTIVILABNNILAE
AOKRUSNWTSLBGNV
IRNTLTIVYVWBTACOL
FOGDDFCOSKERRKACI
ESILKPMFIDOUAATFN
KPYEFAAIDVKCTYHUE
DICDNERNXITKSGMS
LEACOWEXTUJIAVVK
FLPLSKVTPRCDEJRNK
KLEODVJIAKRESLVICH
ONINOAAREVITCUDNI
KOTCSIBLPJAENLIER
STRAIGHTANGLEWGOAP
ELONARTUCAYKNFDOZN
TUBARNKIVTEGRAUVVF

Lesson 1-2

(G.6)(B) To use nets to represent three-dimensional geometric figures

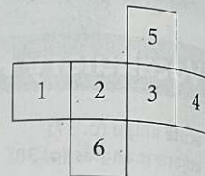
(G.6)(C) To use orthographic and isometric views to represent three-dimensional geometric figures

Supports (8.7)(A) TAKES Obj. 7

A **net** is a two-dimensional pattern that you can fold to form a three-dimensional figure. A net shows all surfaces of a figure in one view.

17. The net at the right is for a number cube. What are the three sums of the numbers on opposite surfaces of the cube? **4, 6, 11**

18. On another number cube, the numbers on each pair of opposite surfaces add to 7. Draw a net for this number cube. **See margin.**



Lessons 1-3 and 1-4

(G.1)(A) To develop an awareness of the structure of a mathematical system, connecting definitions and postulates

(G.3)(D) To use inductive reasoning to formulate a conjecture

Points that lie on the same line are **collinear points**. Points and lines in the same plane are **coplanar**. **Segments** and **rays** are parts of lines.

Lines that are coplanar and do not intersect are **parallel lines**. Lines in space that are not parallel and do not intersect are **skew**. Planes that do not intersect are **parallel planes**.

Use the figure at the right for Exercises 19–22.

19–22. Answers may vary. Samples are given.

19. Name two intersecting lines. **$\overleftrightarrow{AQ}$ and $\overleftrightarrow{QR}$**

20. Name three noncollinear points. **A, Q, R**

21. Name a pair of parallel planes.

22. Name three lines that intersect at D.

$\overleftrightarrow{AD}$, $\overleftrightarrow{TD}$, $\overleftrightarrow{CD}$

Complete with *always*, *sometimes*, or *never* to make a true statement.

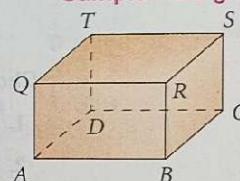
23. **always**

23. A line and a point are ? coplanar.

24. Two segments are ? coplanar. **sometimes**

25. Skew lines are ? coplanar. **never**

26. Two points are ? collinear. **always**



Lessons 1-5 and 1-6

(G.4)(A) To select an appropriate representation in order to solve problems.

(G.7)(A) To use a one-dimensional coordinate system to represent points, lines, and line segments

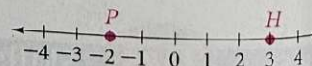
(G.7)(C) To derive and use a formula involving length

Segments with the same length are **congruent segments**. A **midpoint** of a segment divides the segment into two congruent segments.

Two rays with the same endpoint form an **angle**. Angles can be classified as acute, right, obtuse, or straight. Angles with the same measure are **congruent angles**.

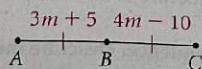
27. Find two possible coordinates of Q so that $PQ = 5$. **-7, 3**

28. Find the coordinate of the midpoint of PH . **0.5**

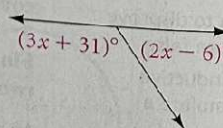


x² Algebra Find the value of each variable.

29. **15**



30. **31**



31. Answers may vary. Samples are given.

a. $\angle ADB$, $\angle BDC$

b. $\angle ADE$, $\angle EDF$

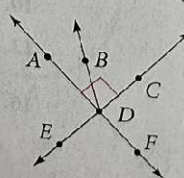
c. $\angle ADC$, $\angle EDF$

31. Name a pair of each of the following.

a. complementary angles

b. supplementary angles

c. vertical angles



Lesson 1-7

(G.2)(A) To use constructions to explore attributes of geometric figures and to make conjectures about geometric relationships

Construction is the process of making geometric figures using a **compass** and a **straightedge**. Four basic constructions involve constructing congruent segments, congruent angles, and bisectors of segments and angles.

Perpendicular lines intersect at right angles. A **perpendicular bisector** of a segment is perpendicular to the segment at its midpoint, and bisects it into two congruent segments. An **angle bisector** is a ray that divides an angle into two congruent angles.

32. Use a protractor to draw a 64° angle. Then construct an angle congruent to your 64° angle. **See margin.**

33. Use a ruler and draw $\overline{PQ}$.

- Construct $\overline{AB} \cong \overline{PQ}$.
- Construct the perpendicular bisector of $\overline{AB}$.

a. b. See margin.

Lesson 1-8

(G.7)(A) To use two-dimensional coordinate systems to represent points, lines, line segments, and figures

(G.7)(C) To derive and use formulas involving length and midpoint

Supports (8.7)(D) **IAES** Obj. 6

The x -axis and the y -axis intersect at the origin $(0, 0)$ and determine a coordinate plane. You can find the coordinate of the midpoint M of $\overline{AB}$ with endpoints $A(x_1, y_1)$ and $B(x_2, y_2)$ using the **Midpoint Formula**.

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

You can find the distance d between points $A(x_1, y_1)$ and $B(x_2, y_2)$ using the **Distance Formula**.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Find the distance between the points to the nearest tenth.

- $A(-1, 5), B(0, 4)$ **1.4 units**
- $C(-1, -1), D(6, 2)$ **7.3 units**
- $E(-7, 0), F(5, 8)$ **14.4 units**

$\overline{GH}$ has endpoints $G(-3, 2)$ and $H(3, -2)$.

37. Find the coordinates of the midpoint of $\overline{GH}$. **$(0, 0)$**

38. Find GH to the nearest tenth. **7.2 units**

Lesson 1-9

(G.8)(A) To find areas, including squares, circles, and composite figures

(G.9)(B) To formulate conjectures about polygons based on explorations and concrete models

The perimeter P of a polygon is the sum of the lengths of its sides. The area A of a polygon is the number of square units it encloses.

Formulas:

Square

$$P = 4s$$

$$A = s^2$$

Rectangle

$$P = 2b + 2h$$

$$A = bh$$

Circle

$$C = \pi d \text{ or } C = 2\pi r$$

$$A = \pi r^2$$

Find the perimeter and the area of each figure.



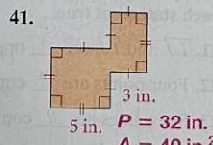
$$P = 32 \text{ cm}$$

$$A = 64 \text{ cm}^2$$



$$P = 38 \text{ ft}$$

$$A = 78 \text{ ft}^2$$



$$P = 32 \text{ in.}$$

$$A = 40 \text{ in.}^2$$

Find the circumference and the area of each circle to the nearest hundredth.

42. $r = 3 \text{ in.}$
 $C \approx 18.85 \text{ in.}$
 $A \approx 28.27 \text{ in.}^2$

43. $d = 15 \text{ m}$
 $C \approx 47.12 \text{ m}$
 $A \approx 176.71 \text{ m}^2$

44. $r = 26 \text{ m}$
 $C \approx 163.36 \text{ m}$
 $A \approx 2123.72 \text{ m}^2$

Alternative Assessment

L4

Alternative Assessment

Chapter 1

Use a straightedge and compass for all constructions.

754 1

1. Construct a line segment $\overline{AB}$ and a point P on $\overline{AB}$.

2. Construct a line segment $\overline{CD}$ and a point Q on $\overline{CD}$.

3. Construct a line segment $\overline{EF}$ and a point R on $\overline{EF}$.

4. Construct a line segment $\overline{GH}$ and a point S on $\overline{GH}$.

5. Construct a line segment $\overline{IJ}$ and a point T on $\overline{IJ}$.

6. Construct a line segment $\overline{KL}$ and a point U on $\overline{KL}$.

7. Construct a line segment $\overline{MN}$ and a point V on $\overline{MN}$.

8. Construct a line segment $\overline{OP}$ and a point W on $\overline{OP}$.

9. Construct a line segment $\overline{QR}$ and a point X on $\overline{QR}$.

10. Construct a line segment $\overline{ST}$ and a point Y on $\overline{ST}$.

11. Construct a line segment $\overline{UV}$ and a point Z on $\overline{UV}$.

12. Construct a line segment $\overline{WX}$ and a point A on $\overline{WX}$.

13. Construct a line segment $\overline{YZ}$ and a point B on $\overline{YZ}$.

14. Construct a line segment $\overline{AB}$ and a point C on $\overline{AB}$.

15. Construct a line segment $\overline{CD}$ and a point D on $\overline{CD}$.

16. Construct a line segment $\overline{EF}$ and a point E on $\overline{EF}$.

17. Construct a line segment $\overline{GH}$ and a point F on $\overline{GH}$.

18. Construct a line segment $\overline{IJ}$ and a point G on $\overline{IJ}$.

19. Construct a line segment $\overline{KL}$ and a point H on $\overline{KL}$.

20. Construct a line segment $\overline{MN}$ and a point I on $\overline{MN}$.

21. Construct a line segment $\overline{OP}$ and a point J on $\overline{OP}$.

22. Construct a line segment $\overline{QR}$ and a point K on $\overline{QR}$.

23. Construct a line segment $\overline{ST}$ and a point L on $\overline{ST}$.

24. Construct a line segment $\overline{UV}$ and a point M on $\overline{UV}$.

25. Construct a line segment $\overline{WX}$ and a point N on $\overline{WX}$.

26. Construct a line segment $\overline{YZ}$ and a point O on $\overline{YZ}$.

27. Construct a line segment $\overline{AB}$ and a point P on $\overline{AB}$.

28. Construct a line segment $\overline{CD}$ and a point Q on $\overline{CD}$.

29. Construct a line segment $\overline{EF}$ and a point R on $\overline{EF}$.

30. Construct a line segment $\overline{GH}$ and a point S on $\overline{GH}$.

31. Construct a line segment $\overline{IJ}$ and a point T on $\overline{IJ}$.

32. Construct a line segment $\overline{KL}$ and a point U on $\overline{KL}$.

33. Construct a line segment $\overline{MN}$ and a point V on $\overline{MN}$.

34. Construct a line segment $\overline{OP}$ and a point W on $\overline{OP}$.

35. Construct a line segment $\overline{QR}$ and a point X on $\overline{QR}$.

36. Construct a line segment $\overline{ST}$ and a point Y on $\overline{ST}$.

37. Construct a line segment $\overline{UV}$ and a point Z on $\overline{UV}$.

38. Construct a line segment $\overline{WX}$ and a point A on $\overline{WX}$.

39. Construct a line segment $\overline{YZ}$ and a point B on $\overline{YZ}$.

40. Construct a line segment $\overline{AB}$ and a point C on $\overline{AB}$.

41. Construct a line segment $\overline{CD}$ and a point D on $\overline{CD}$.

42. Construct a line segment $\overline{EF}$ and a point E on $\overline{EF}$.

43. Construct a line segment $\overline{GH}$ and a point F on $\overline{GH}$.

44. Construct a line segment $\overline{IJ}$ and a point G on $\overline{IJ}$.

45. Construct a line segment $\overline{KL}$ and a point H on $\overline{KL}$.

46. Construct a line segment $\overline{MN}$ and a point I on $\overline{MN}$.

47. Construct a line segment $\overline{OP}$ and a point J on $\overline{OP}$.

48. Construct a line segment $\overline{QR}$ and a point K on $\overline{QR}$.

49. Construct a line segment $\overline{ST}$ and a point L on $\overline{ST}$.

50. Construct a line segment $\overline{UV}$ and a point M on $\overline{UV}$.

51. Construct a line segment $\overline{WX}$ and a point N on $\overline{WX}$.

52. Construct a line segment $\overline{YZ}$ and a point O on $\overline{YZ}$.

53. Construct a line segment $\overline{AB}$ and a point P on $\overline{AB}$.

54. Construct a line segment $\overline{CD}$ and a point Q on $\overline{CD}$.

55. Construct a line segment $\overline{EF}$ and a point R on $\overline{EF}$.

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58. Construct a line segment $\overline{KL}$ and a point U on $\overline{KL}$.

59. Construct a line segment $\overline{MN}$ and a point V on $\overline{MN}$.

60. Construct a line segment $\overline{OP}$ and a point W on $\overline{OP}$.

61. Construct a line segment $\overline{QR}$ and a point X on $\overline{QR}$.

62. Construct a line segment $\overline{ST}$ and a point Y on $\overline{ST}$.

63. Construct a line segment $\overline{UV}$ and a point Z on $\overline{UV}$.

64. Construct a line segment $\overline{WX}$ and a point A on $\overline{WX}$.

65. Construct a line segment $\overline{YZ}$ and a point B on $\overline{YZ}$.

66. Construct a line segment $\overline{AB}$ and a point C on $\overline{AB}$.

67. Construct a line segment $\overline{CD}$ and a point D on $\overline{CD}$.

68. Construct a line segment $\overline{EF}$ and a point E on $\overline{EF}$.

69. Construct a line segment $\overline{GH}$ and a point F on $\overline{GH}$.

70. Construct a line segment $\overline{IJ}$ and a point G on $\overline{IJ}$.

71. Construct a line segment $\overline{KL}$ and a point H on $\overline{KL}$.

72. Construct a line segment $\overline{MN}$ and a point I on $\overline{MN}$.

73. Construct a line segment $\overline{OP}$ and a point J on $\overline{OP}$.

74. Construct a line segment $\overline{QR}$ and a point K on $\overline{QR}$.

75. Construct a line segment $\overline{ST}$ and a point L on $\overline{ST}$.

76. Construct a line segment $\overline{UV}$ and a point M on $\overline{UV}$.

77. Construct a line segment $\overline{WX}$ and a point N on $\overline{WX}$.

78. Construct a line segment $\overline{YZ}$ and a point O on $\overline{YZ}$.

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80. Construct a line segment $\overline{CD}$ and a point Q on $\overline{CD}$.

81. Construct a line segment $\overline{EF}$ and a point R on $\overline{EF}$.

82. Construct a line segment $\overline{GH}$ and a point S on $\overline{GH}$.

83. Construct a line segment $\overline{IJ}$ and a point T on $\overline{IJ}$.

84. Construct a line segment $\overline{KL}$ and a point U on $\overline{KL}$.

85. Construct a line segment $\overline{MN}$ and a point V on $\overline{MN}$.

86. Construct a line segment $\overline{OP}$ and a point W on $\overline{OP}$.

87. Construct a line segment $\overline{QR}$ and a point X on $\overline{QR}$.

88. Construct a line segment $\overline{ST}$ and a point Y on $\overline{ST}$.

89. Construct a line segment $\overline{UV}$ and a point Z on $\overline{UV}$.

90. Construct a line segment $\overline{WX}$ and a point A on $\overline{WX}$.

91. Construct a line segment $\overline{YZ}$ and a point B on $\overline{YZ}$.

92. Construct a line segment $\overline{AB}$ and a point C on $\overline{AB}$.

93. Construct a line segment $\overline{CD}$ and a point D on $\overline{CD}$.

94. Construct a line segment $\overline{EF}$ and a point E on $\overline{EF}$.

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98. Construct a line segment $\overline{MN}$ and a point I on $\overline{MN}$.

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100. Construct a line segment $\overline{QR}$ and a point K on $\overline{QR}$.

101. Construct a line segment $\overline{ST}$ and a point L on $\overline{ST}$.

102. Construct a line segment $\overline{UV}$ and a point M on $\overline{UV}$.

103. Construct a line segment $\overline{WX}$ and a point N on $\overline{WX}$.

104. Construct a line segment $\overline{YZ}$ and a point O on $\overline{YZ}$.

105. Construct a line segment $\overline{AB}$ and a point P on $\overline{AB}$.

106. Construct a line segment $\overline{CD}$ and a point Q on $\overline{CD}$.

107. Construct a line segment $\overline{EF}$ and a point R on $\overline{EF}$.

108. Construct a line segment $\overline{GH}$ and a point S on $\overline{GH}$.

109. Construct a line segment $\overline{IJ}$ and a point T on $\overline{IJ}$.

110. Construct a line segment $\overline{KL}$ and a point U on $\overline{KL}$.

111. Construct a line segment $\overline{MN}$ and a point V on $\overline{MN}$.

112. Construct a line segment $\overline{OP}$ and a point W on $\overline{OP}$.

113. Construct a line segment $\overline{QR}$ and a point X on $\overline{QR}$.

114. Construct a line segment $\overline{ST}$ and a point Y on $\overline{ST}$.

115. Construct a line segment $\overline{UV}$ and a point Z on $\overline{UV}$.

116. Construct a line segment $\overline{WX}$ and a point A on $\overline{WX}$.

117. Construct a line segment $\overline{YZ}$ and a point B on $\overline{YZ}$.

118. Construct a line segment $\overline{AB}$ and a point C on $\overline{AB}$.

119. Construct a line segment $\overline{CD}$ and a point D on $\overline{CD}$.

120. Construct a line segment $\overline{EF}$ and a point E on $\overline{EF}$.

121. Construct a line segment $\overline{GH}$ and a point F on $\overline{GH}$.

122. Construct a line segment $\overline{IJ}$ and a point G on $\overline{IJ}$.

Chapter 1

Extra Practice: Skills, Word Problems, and Proof

Lesson 1-1

Find the next two terms in each sequence.

1. 12, 17, 22, 27, 32, ... **37, 42**
2. 1, 1.1, 1.11, 1.111, 1.1111, ... **1.11111, 1.111111**
3. 5000, 1000, 200, 40, ... **8, $\frac{8}{5}$**
4. 1, 12, 123, 1234, ... **12,345, 123,456**
5. 3, 0.3, 0.03, 0.003, ... **0.0003, 0.00003**
6. 1, 4, 9, 16, 25, ... **36, 49**

Draw the next figure in each sequence.

- 7.
- 8.

7-8. See margin.

Lesson 1-2

Name the space figure that can be formed by folding each net.

9.
cube
10.
triangular prism
11.
cylinder
12.
rectangular prism

Make (a) an isometric drawing and (b) an orthographic drawing for each foundation drawing. 13, 16. See margin.

- 13.
- 14.
- 15.
- 16.

17. You can cut four of the lettered squares from the figure at the right and fold the remaining net to make a box that is open at one end. Write the letters of the squares you could remove to do this. List all the possibilities.

A, C, G, I; D, G, F; A, B, C, H; A, D, C, F; B, C, H, I; C, F, D, G; A, B, H, I

Lessons 1-3 and 1-4

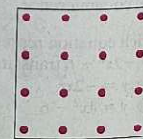
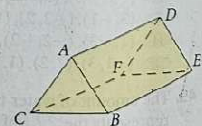
Write true or false.

18. $\overline{AD}$, $\overline{DF}$ are coplanar. **true**
19. $\overline{AC}$ and $\overline{FE}$ are coplanar. **false**
20. $\overline{AB}$, $\overline{BE}$ are coplanar. **true**
21. $\overline{D}$, $\overline{A}$, $\overline{B}$, $\overline{E}$ are coplanar. **true**
22. $\overline{PC} \parallel \overline{EF}$ **false**
23. plane $ABC \parallel$ plane FDE **true**
24. $\overline{BC}$ and $\overline{DF}$ are skew lines. **true**
25. $\overline{AD}$ and $\overline{EB}$ are skew lines. **false**
26. $\overline{DE} \parallel \overline{CF}$ **false**
27. $\overline{D}$, $\overline{E}$, and $\overline{B}$ are collinear. **false**

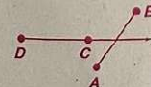
28. How many sets of four collinear points are there in a 4-by-4 geoboard as pictured at the right? **10 sets**

29. $\overline{AB}$ and $\overline{CD}$ do not intersect but $\overline{DC}$ intersects $\overline{AB}$ in one point. Make a sketch that shows this. See margin.

A	B	C
D	E	F
G	H	I



29. Sample:



Lessons 1-5 and 1-6

Use the figure at the right for Exercises 30–35.

30. If $BC = 12$ and $CE = 15$, then $BE = \square$. **27**

31. $\square$ is the angle bisector of $\angle \square$. **$\overline{CG}, \angle BCA$**

32. Algebra $BC = 3x + 2$ and $CD = 5x - 10$. Solve for x . **6**

33. Algebra If $AC = 5x - 10$ and $CF = 2x - 4$, then $AF = \square$. **8**

34. $m\angle BCG = 60$, $m\angle GCA = \square$, and $m\angle BCA = \square$. **60, 120**

35. $m\angle ACD = 60$ and $m\angle DCH = 20$. Find $m\angle HCA$. **40**

36. Algebra In the figure at the right, $m\angle PQR = 4x + 47$. Find $m\angle PQS$. **31**

37. Algebra Points A , B , and C are collinear with B between A and C .
 $AB = 4x - 1$, $BC = 2x + 1$, and $AC = 8x - 4$. Find AB , BC , and AC . **7, 5, 12**

Lesson 1-7

Make a diagram larger than the given one. Then do the construction.

38. Construct $\angle A$ so that $m\angle A = m\angle 1 + m\angle 2$. **38–41. See margin.**

39. Construct the perpendicular bisector of $\overline{AB}$.

40. Construct the angle bisector of $\angle 1$.

41. Construct $\overline{FG}$ so that $FG = AB + CD$.

Lesson 1-8

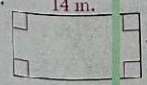
- (a) Find the distance between the points to the nearest tenth.
 (b) Find the coordinates of the midpoint of the segments with the given endpoints.

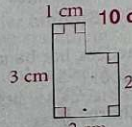
42. $A(2, 1)$, $B(3, 1)$ **1.4; $(\frac{5}{2}, 1)$** 43. $R(5, 2)$, $S(-2, 4)$ **7.3; $(\frac{3}{2}, 3)$**
 44. $Q(-7, -4)$, $T(6, 10)$ **19; $(-\frac{1}{2}, 3)$** 45. $C(-8, -1)$, $D(-5, -11)$ **10.4; $(-\frac{13}{2}, -6)$**
 46. $J(0, -5)$, $N(3, -4)$ **9.5; $(\frac{3}{2}, -\frac{1}{2})$** 47. $Y(-2, 8)$, $Z(3, -5)$ **13.9; $(\frac{1}{2}, \frac{3}{2})$**

48. A map of a city and suburbs shows an airport located at $A(25, 11)$.
 An ambulance is on a straight expressway headed from the airport to Grant Hospital at $C(1, 1)$. The ambulance gets a flat tire at the midpoint M of $\overline{AG}$.
 As a result, the ambulance crew calls for helicopter assistance.
 a. What are the coordinates of point M ? **(13, 6)**
 b. How far does the helicopter have to fly to get from M to G ? Assume all coordinates are in miles. **13 mi**

Lesson 1-9

Find the perimeter (or circumference) and area of each figure.

49. 
42 in., 98 in.²

50. 
30 cm, 5 cm²

51. 
 3π m, $\frac{9}{4}\pi$ m²

52. 
 $(12 + 2\pi)$ in., $(16 + 2\pi)$ in.²

Skills, Word Problems, and Proof

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