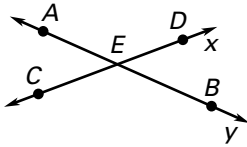


**CHAPTER 1** **Standardized Test**  
For use after the chapter "Essentials of Geometry"

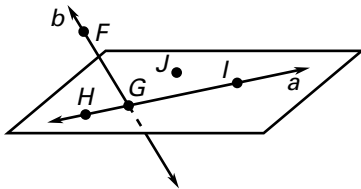
**Multiple Choice**

1. Which statement about the figure is true?



- (A) Lines  $x$  and  $y$  intersect at point  $A$ .
- (B) Points  $A$ ,  $B$ , and  $C$  are collinear.
- (C)  $\overrightarrow{EC}$  and  $\overrightarrow{ED}$  are opposite rays.
- (D) Another name for  $\overline{AE}$  is  $\overline{AB}$ .

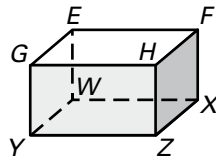
2. Name three points that are collinear.



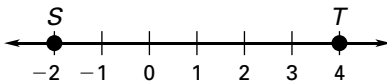
- (A)  $G$ ,  $H$ , and  $I$
- (B)  $H$ ,  $G$ , and  $J$
- (C)  $F$ ,  $G$ , and  $I$
- (D)  $G$ ,  $J$ , and  $I$

3. What is the intersection of plane  $HGY$  and plane  $HFX$ ?

- (A)  $\overline{HZ}$
- (B)  $\overline{HW}$
- (C) Point  $H$
- (D) Plane  $EFH$

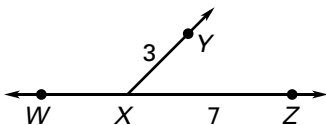


4. What is the length of  $\overline{ST}$ ?



- (A) 2
- (B) 4
- (C) -2
- (D) 6

5. If  $\overline{WX} \cong \overline{XY}$ , what is the length of  $\overline{WZ}$ ?



- (A) 7
- (B) 10
- (C) 3
- (D) 4

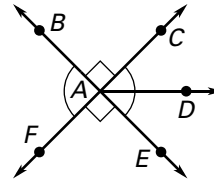
6. The endpoints of  $\overline{CD}$  are  $C(6, 1)$  and  $D(-4, -1)$ . Find the midpoint  $M$  of  $\overline{CD}$ .

- (A)  $M(10, 2)$
- (B)  $M(-10, -2)$
- (C)  $M(2, 0)$
- (D)  $M(1, 0)$

7.  $\overline{JK}$  has a length of 4.5 units. If  $\overline{LM}$  has endpoints  $L(3, 1)$  and  $M(-1, 4)$ , how much longer than  $\overline{JK}$  is  $\overline{LM}$ ?

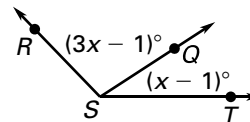
- (A) 0.5 unit
- (B) 2 units
- (C) 2.5 units
- (D)  $\overline{JK}$  is longer.

8. Name the acute angles in the given figure.



- (A)  $\angle CAD$  and  $\angle DAE$
- (B)  $\angle BAC$  and  $\angle FAE$
- (C)  $\angle BAF$  and  $\angle CAE$
- (D)  $\angle BAD$  and  $\angle FAD$

9. If the measure of  $\angle RST$  is  $134^\circ$ , find the measure of  $\angle QST$ .



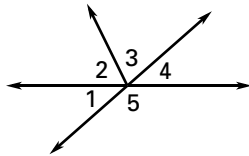
- (A)  $67^\circ$
- (B)  $33^\circ$
- (C)  $34^\circ$
- (D)  $98^\circ$

10.  $m\angle A$  is  $42^\circ$  greater than  $m\angle B$ . If  $\angle A$  and  $\angle B$  are supplementary, find  $m\angle A$  and  $m\angle B$ .

- (A)  $m\angle A = 111^\circ$ ,  $m\angle B = 69^\circ$
- (B)  $m\angle A = 42^\circ$ ,  $m\angle B = 48^\circ$
- (C)  $m\angle A = 42^\circ$ ,  $m\angle B = 138^\circ$
- (D)  $m\angle A = 66^\circ$ ,  $m\angle B = 24^\circ$

**CHAPTER 1** **Standardized Test** *continued*  
 For use after the chapter "Essentials of Geometry"

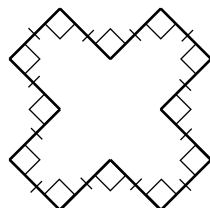
11. Name a pair of vertical angles in the figure shown.



- (A)  $\angle 2$  and  $\angle 4$       (B)  $\angle 1$  and  $\angle 4$   
 (C)  $\angle 3$  and  $\angle 5$       (D) There are none.

12. Which describes the following polygon?

- (A) equilateral  
 (B) equiangular  
 (C) regular  
 (D) none of these



13. Which of the following is a convex polygon?

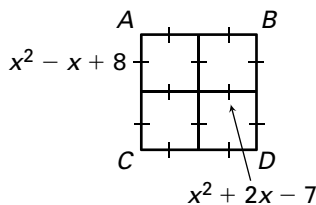
- (A)      (B)   
 (C)      (D)

14. Point M is the midpoint of  $\overline{AB}$ . If  $AM = 12x + 8$  and  $MB = 10x + 15$ , find the length of  $\overline{AB}$ .

- (A) 3.5      (B) 4  
 (C) 50      (D) 100

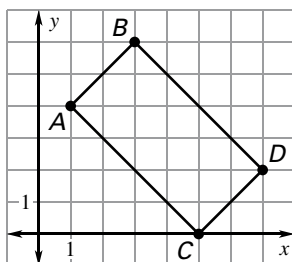
15. Find  $CD$ .

- (A) 5  
 (B) 28  
 (C) 56  
 (D) 96



16. Find the length of diagonal  $BC$  of  $ABCD$  to the nearest hundredth.

- (A) 2.83 units  
 (B) 5.66 units  
 (C) 6.32 units  
 (D) 7.21 units



**Gridded Answer**

17. Find the area, in square units, of a triangle with vertices  $X(-7, 2)$ ,  $Y(8, 2)$ , and  $Z(6, 7)$ .

	/	/	
•	•	•	•
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

**Short Response**

18. A swimmer stands somewhere in a circular pool. The distance to the farthest side (through the center of the pool) is 3 times the distance to the nearest side. The circumference of the pool is 100 feet.
- How close is the swimmer to the nearest side?
  - How far must the swimmer swim to get to the center?

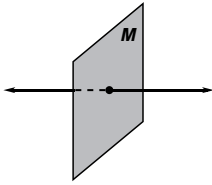
**Extended Response**

19. You are a surveyor. You take your first measurement facing due north. You turn to the right to take your second measurement and then right again, 4 times as far, to take your third measurement. You are now facing due west.
- How many degrees did you turn to take your second measurement?
  - How many degrees should you have turned after your second measurement if you wanted to take your third measurement facing south?
  - How many degrees must you turn to the left in order to take a fourth measurement in the opposite direction of your second measurement?

# Answers for Essentials of Geometry

## Quiz 1

1.



2. 9   3. 6   4. 12   5. 12   6. 15   7. 21

8. midpoint: (1, 5);  $ST = 10$

## Quiz 2

1.  $24^\circ$ ;  $24^\circ$    2.  $87^\circ$ ;  $87^\circ$    3.  $45^\circ$ ;  $45^\circ$    4.  $39^\circ$ ;  $129^\circ$    5.  $73^\circ$ ;  $163^\circ$    6.  $10^\circ$ ;  $100^\circ$    7.  $87^\circ$ ;  $177^\circ$

8. Part of the figure is not a segment, therefore it is not a polygon.   9. convex polygon

10. concave polygon

## Chapter Test A

1.  $\overrightarrow{BA}$ ,  $f$    2.  $A$ ,  $C$ , and  $G$    3.  $B$    4.  $\overrightarrow{XY}$  or  $\overrightarrow{WY}$

5.  $\overrightarrow{XY}$ ,  $\overrightarrow{XW}$ ,  $\overrightarrow{XA}$ ,  $\overrightarrow{XB}$    6.  $\overrightarrow{WY}$    7. 4.6 cm

8. 2.2 cm   9. 18   10. 37   11.  $\sqrt{40}$    12.  $\sqrt{29}$

13. (1, 5)   14. (-1, -2)   15.  $34^\circ$ ; acute

16.  $146^\circ$ ; obtuse   17.  $90^\circ$ ; right   18.  $3^\circ$    19.  $75^\circ$

20.  $19^\circ$    21.  $172^\circ$    22.  $93^\circ$    23.  $65^\circ$    24. linear pair

25. vertical angles   26. neither   27. heptagon

28. pentagon   29. concave   30. convex

## Chapter Test B

1. false   2. true   3. true   4. 150 ft   5. 7   6. 38

7.  $\sqrt{20}$    8.  $\sqrt{10}$    9.  $\sqrt{17}$    10. (7, -1)

11. (-6, 7)   12. 5   13. 24   14.  $73^\circ$    15.  $134^\circ$

16.  $36^\circ$ ;  $144^\circ$    17.  $58^\circ$ ;  $122^\circ$    18. always

19. never   20. sometimes   21. sometimes

22. always   23. always   24. regular triangle; it has all angles and sides congruent   25. equilateral; it has all sides congruent but not all angles

26. 13   27.  $135^\circ$    28. 0.5 yd

## Chapter Test C

1. Point  $L$    2.  $\overrightarrow{AD}$

3. Planes  $LON$ ,  $CNO$ , and  $ALO$

4.  $\overrightarrow{CN}$ ,  $\overrightarrow{NM}$ , and  $\overrightarrow{ON}$    5. (0, 1)   6. (3, 4)

7.  $AB = CD = \sqrt{20}$ ;  $\overline{AB} \cong \overline{CD}$

8.  $WX = \sqrt{17}$ ;  $YZ = \sqrt{13}$ ;  $\overline{WX} \not\cong \overline{YZ}$

9.  $m\angle QRS = 30^\circ$ ;  $m\angle SRT = 65^\circ$

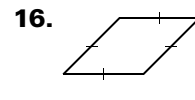
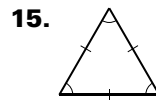
10.  $m\angle ABC = 35^\circ$ ;  $m\angle CBD = 145^\circ$

11.  $m\angle XYZ = 24^\circ$ ;  $m\angle LMN = 66^\circ$

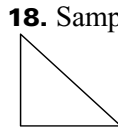
12.  $m\angle QRS = 67^\circ$ ;  $m\angle EFG = 113^\circ$

13.  $m\angle FGH = 121^\circ$ ;  $m\angle HGJ = 59^\circ$

14.  $m\angle LMN = 85^\circ$ ;  $m\angle NMO = 95^\circ$



17. Sample answer:



19. always   20. sometimes   21. sometimes

22. always   23. 9 ft

## Standardized Test

1. C   2. A   3. B   4. D   5. B   6. D   7. A

8. A   9. B   10. A   11. B   12. A   13. C

14. A   15. C   16. C   17. 37.5   18. a.  $\frac{25}{\pi}$  ft  
b.  $\frac{25}{\pi}$  ft   19. a.  $54^\circ$    b.  $126^\circ$    c.  $36^\circ$

## SAT/ACT Chapter Test

1. D   2. A   3. E   4. C   5. D   6. C   7. B   8. D

9. C   10. D   11. B   12. B   13. C   14. D

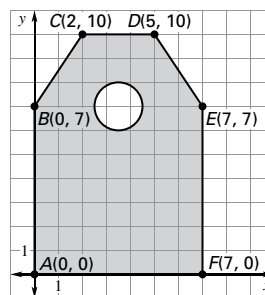
15. 24   16. 32   17. 33

## Alternative Assessment

1. a. an explanation that three collinear points must be coplanar; example of three collinear points that are coplanar   b. explanations that all equiangular polygons are not equilateral and all equilateral polygons are not equiangular; examples of an equiangular polygon that is not equilateral (e.g. rectangle) and an equilateral polygon that is not equiangular (e.g. rhombus)

2. a. hexagon; not equilateral, equiangular, or regular

b. Sample answer:



c. Sample answer: (3.5, 7)   d.  $\overline{AB}$ ,  $\overline{AF}$ , and  $\overline{EF}$ ;  $\overline{CB}$  and  $\overline{DE}$    e.  $m\angle CBE = 60^\circ$    f. about 9.9 units