

CHAPTER 3

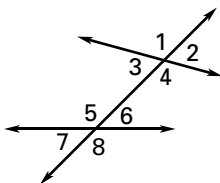
Standardized Test

For use after the chapter "Parallel and Perpendicular Lines"

Multiple Choice

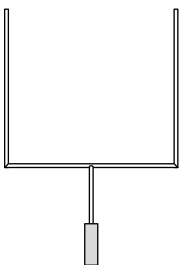
1. Which pair of angles are corresponding angles?

- (A) $\angle 1$ and $\angle 8$
- (B) $\angle 3$ and $\angle 7$
- (C) $\angle 3$ and $\angle 5$
- (D) $\angle 2$ and $\angle 7$



2. What is one way to describe the vertical bars of a football goalpost?

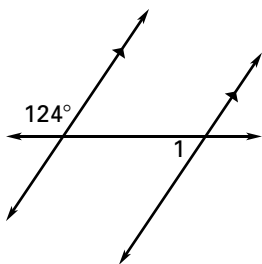
- (A) perpendicular
- (B) intersecting
- (C) skew
- (D) parallel



3. If two angles lie between two lines and on opposite sides of a transversal, then the angles are _____.

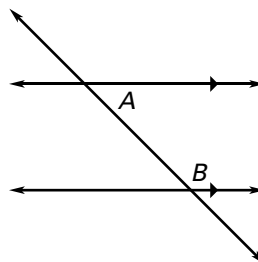
- (A) consecutive interior angles
- (B) alternate interior angles
- (C) alternate exterior angles
- (D) corresponding angles

4. Find $m\angle 1$.



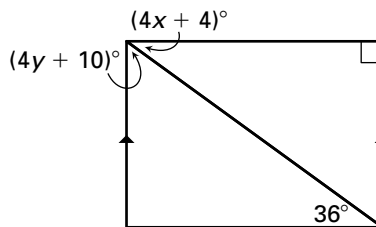
- (A) 34°
- (B) 45°
- (C) 124°
- (D) 56°

5. Based on the diagram, which theorem would you use to support the statement $m\angle A + m\angle B = 180^\circ$?



- (A) Alternate Interior Angles Theorem
- (B) Alternate Exterior Angles Theorem
- (C) Consecutive Interior Angles Theorem
- (D) Parallel Lines Theorem

6. Find x and y .



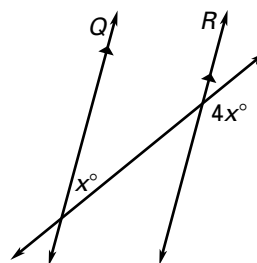
- (A) $x = 11, y = 8$
- (B) $x = 12, y = 8$
- (C) $x = 8, y = 11$
- (D) $x = 11, y = 12$

7. If two lines are cut by a transversal so the alternate exterior angles are congruent, then the lines are _____.

- (A) intersecting
- (B) parallel
- (C) congruent
- (D) perpendicular

8. What value must x be in order to conclude $Q \parallel R$?

- (A) 36
- (B) 45
- (C) 60
- (D) 72



**CHAPTER
3**

Standardized Test *continued*
For use after the chapter "Parallel and Perpendicular Lines"

9. Describe the slope of the line passing through points $A(-2, 3)$ and $B(4, -3)$.
- (A) positive (B) negative
(C) zero (D) undefined

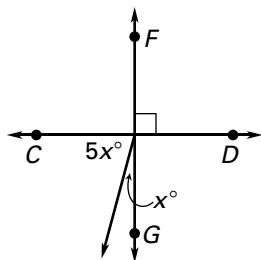
10. Find the slope of a ladder placed 4 feet from the wall and touching the wall at a height of 12 feet.
- (A) 3 (B) -3 (C) $\frac{1}{3}$ (D) $-\frac{1}{3}$

11. What is the equation of the line through point $(2, 1)$ and perpendicular to the line through $(-4, 1)$ and $(3, -2)$?
- (A) $y = \frac{7}{3}x + \frac{11}{3}$ (B) $y = \frac{3}{7}x + \frac{11}{3}$
(C) $y = -\frac{3}{7}x - \frac{11}{3}$ (D) $y = \frac{7}{3}x - \frac{11}{3}$

12. Write an equation of the line with slope = -2 and y -intercept = 5.
- (A) $y = -5x + 2$ (B) $y = 2x - 5$
(C) $y = 5x - 2$ (D) $y = -2x + 5$

13. What best describes the relationship between line $6x - 2y = 1$ and line $x + 3y = 12$?
- (A) parallel (B) perpendicular
(C) skew (D) equivalent

14. Find x if $\overleftrightarrow{CD} \perp \overleftrightarrow{FG}$.



- (A) 18 (B) 30 (C) 15 (D) 90

Gridded Answer

15. Find the distance between points $(-5, 4)$ and $(10, 12)$.

	/	/	
.	.	.	.
	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

16. Parallel lines p and q are cut by transversal t to form angles 1–8. If $\angle 2$ and $\angle 7$ are alternate exterior angles, $\angle 7$ and $\angle 6$ are vertical angles, and $\angle 6$ and $\angle 4$ are consecutive interior angles, what can you conclude about the relationship between the angle measures of $\angle 2$ and $\angle 4$? *Explain.*

Extended Response

17. You race your bike at a speed of 20 miles per hour. Your friend races at a speed of 25 miles per hour. Suppose your friend decides to give you a 30-mile head start.
- Draw a graph plotting the progress of both bikers in a 7-hour race.
 - Write an equation for each of the two lines.
 - Is there a relationship between the slope of each line and the race? the y -intercept and the race? *Explain.*
 - Who would win a 5-hour race? a 6-hour race? a 7-hour race? Who would win if the slopes were equal?

Answers for Parallel and Perpendicular Lines

Quiz 1

1. $\angle 5$ 2. $\angle 6$ 3. $\angle 6$ 4. $\angle 8$ 5. 25 6. 33
7. 16

Quiz 2

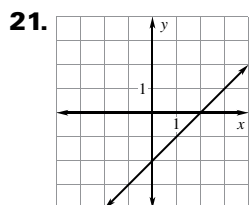
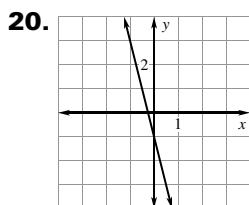
1. 24 2. 65 3. 26 4. 2 5. 1 6. $-\frac{4}{5}$

Quiz 3

1. $y = -2x + 3$ 2. $y = 3x + 13$ 3. $x = 5$
4. $y = -\frac{1}{4}x + 11$ 5. $x = 3$ 6. $y = \frac{1}{6}x - \frac{1}{3}$
7. l and n ; Lines Perpendicular to a Transversal Theorem 8. None. *Sample answer:* It is not known whether b is perpendicular to c .

Chapter Test A

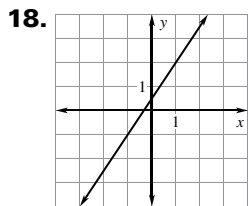
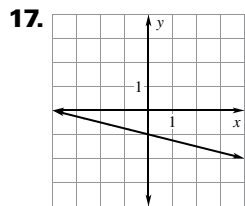
1. alternate interior 2. alternate exterior
3. corresponding 4. vertical 5. consecutive interior
6. alternate exterior 7. 110 8. 70
9. 60 10. 130 11. parallel 12. neither
13. neither 14. perpendicular 15. false
16. true 17. true 18. $y = 2x + 1$
19. $y = -3x - 5$



22. x -intercept: 6; y -intercept: 3
23. x -intercept: -9 ; y -intercept: 6
24. 15° 25. 90° 26. 28° 27. 80°

Chapter Test B

1. alternate exterior 2. alternate interior
3. consecutive interior 4. vertical
5. corresponding 6. alternate exterior 7. 53
8. 60 9. 30 10. 65 11. 24 12. 174
13. perpendicular 14. parallel 15. neither
16. parallel



19. $y = 4x + 7$ 20. $y = -3x + 10$

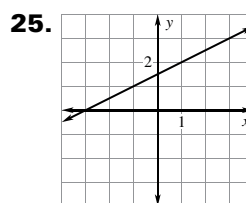
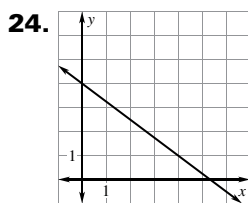
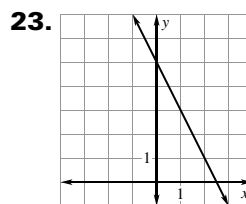
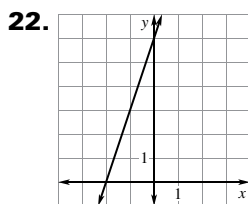
21. $y = -2x + 2$ 22. $y = x - 1$

23. $y = 2.5x + 10$; slope is the cost per hour; y -intercept is the initial cost to rent a bike

24. 7 25. 24

Chapter Test C

1. vertical 2. consecutive interior 3. alternate interior
4. alternate exterior 5. vertical
6. corresponding 7. $x = 8$; $y = 30$ 8. $x = 23$; $y = 46$ 9. Vertical Angles Congruence Theorem
10. $m\angle FCD = m\angle BCA$ 11. Given
12. Transitive Property of Equality
13. $m\angle CFG = 102^\circ$ 14. Addition
15. Substitution Property of Equality
16. $\angle FCD$ and $\angle CFG$ are supplementary.
17. Consecutive Interior Angles Converse
18. $y = -\frac{1}{2}x + 4\frac{1}{2}$ 19. $y = \frac{1}{3}x + 1\frac{2}{3}$
20. $y = -\frac{1}{3}x + 4$ 21. $y = -\frac{1}{2}x - 1\frac{1}{2}$



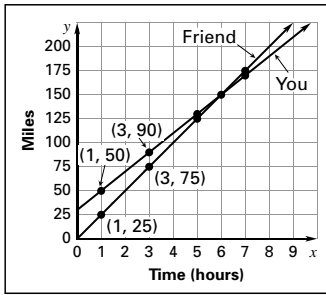
26. $\sqrt{5}$ 27. $2\sqrt{10}$

Standardized Test

1. B 2. D 3. B 4. D 5. C 6. C 7. B
8. A 9. B 10. A 11. D 12. D 13. B
14. C 15. 17 16. They are supplementary. Alternate exterior angles are congruent, so $m\angle 2 = m\angle 7$. Vertical angles are congruent, so $m\angle 7 = m\angle 6$. By transitivity, $m\angle 2 = m\angle 6$. Consecutive interior angles are supplementary, so $m\angle 6 + m\angle 4 = 180^\circ$. Substituting, $m\angle 2 + m\angle 4 = 180^\circ$.

continued

17. a.



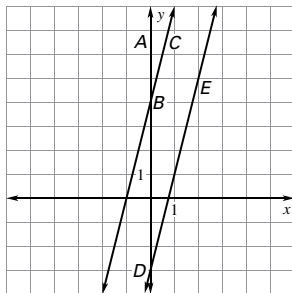
b. your line: $y = 20x + 30$; friend's line: $y = 25x$ **c.** slope is the miles per hour; y -intercept is the head start **d.** 5-hour race: you; 6-hour race: tie; 7-hour race: friend; equal slopes: you; because speed would be equal and you had a head start.

SAT/ACT Chapter Test

1. D 2. D 3. B 4. C 5. A 6. D 7. A 8. E
9. E 10. B 11. A 12. D 13. 75 14. 34

Alternative Assessment

1. **a.** *Sample answer:* Let the y -axis be the transversal that cuts the lines in the graph.



The lines are parallel by the Corresponding Angles Converse because $m\angle ABC = m\angle BDE = 14^\circ$. **b.** Find the slopes of the lines. If they are the same, then the lines are parallel. The slopes of the given lines are both 4, so the lines are parallel. **c.** Use the distance formula to find the length of a perpendicular segment that connects the two lines.

2. a. corresponding angles: $\angle 1$ and $\angle 5$, $\angle 2$ and $\angle 6$, $\angle 3$ and $\angle 7$, $\angle 4$ and $\angle 8$; alternate interior angles: $\angle 3$ and $\angle 6$, $\angle 4$ and $\angle 5$; alternate exterior angles: $\angle 1$ and $\angle 8$, $\angle 2$ and $\angle 7$; consecutive interior angles: $\angle 3$ and $\angle 5$, $\angle 4$ and $\angle 6$ **b.** $\angle 1$, $\angle 4$, $\angle 5$, and $\angle 8$; $\angle 2$, $\angle 3$, $\angle 6$, and $\angle 7$ **c.** 67 **d.** 28 **e.** $y = 50x + 25$; $y = 40x + 50$; The slope is the amount of money paid each month and the y -intercept is the initial cost of the service. **f.** *Sample answer:* Company 2, because it appears to cost less as time goes on. Other factors might include how many free minutes the plan includes and whether the plan includes a free phone or not.