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CHAPTER 8

Cumulative Test

Choose the best answer.

1. P, W, and K are collinear, and W is between P and K. $PW = 10x$, $WK = 2x + 7$, and $PW - WK = 6x + 11$. What is PK?

A 25 **C** 90

B 65 **D** 115

2. $\overrightarrow{RM}$ bisects $\angle VRQ$. If $m\angle MRQ = 82°$, what is $m\angle VRM$?

F 41° **H** 98°

G 82° **J** 164°

3. The measure of the complement of an angle is 59°. What is the measure of the supplement of the angle?

A 31° **C** 121°

B 39° **D** 149°

4. What is the midpoint of the segment whose endpoints are (17, 1) and (−9, 3)?

F (8, 4) **H** (13, −1)

G (4, 2) **J** (26, −2)

5. To the nearest tenth, what is the distance between the points (−12, 9) and (6, 10)?

A 16.3 **C** 19.9

B 18.0 **D** 21.4

6. Which is the image of (−4, 7) rotated 180° about the origin?

F (4, −7) **H** (−4, 7)

G (7, −4) **J** (−7, 4)

7. What is the next letter in the series?

a b d g k p . . .

A q **C** v

B u **D** z

8. If $7k = 12$ and $6c = 7k$, which is true by the Transitive Property of Equality?

F $c = 2$ **H** $7k = 7k$

G $7k = 6c$ **J** $6c = 12$

9. Which statement has a true contrapositive?

A If exactly two angles of a triangle are acute, then the triangle is an acute triangle.

B If two angles of a triangle are congruent, then the sides opposite them are congruent.

C If the sum of two angles of a triangle is more than 90°, then one of the two angles is obtuse.

D If no two angles of a triangle are congruent, then the triangle is not scalene.

10. Given: If two angles of a triangle are congruent, then the triangle is isosceles. If a triangle is isosceles, then two altitudes of the triangle are congruent. Which conjecture is valid by the Law of Syllogism?

F If two angles of a triangle are congruent, then the triangle is isosceles.

G If two altitudes of a triangle are congruent, then the triangle is isosceles.

H If two angles of a triangle are congruent, then two altitudes of the triangle are congruent.

J If two altitudes of a triangle are congruent, then the base angles of the triangle are congruent.

11. Which biconditional statement is false?

A $x = 1$ if and only if $x^2 = 1$.

B Three points are collinear if and only if one point is between the other two.

C An angle is a straight angle if and only if its sides are opposite rays.

D A polygon is a triangle if and only if it has exactly three sides.

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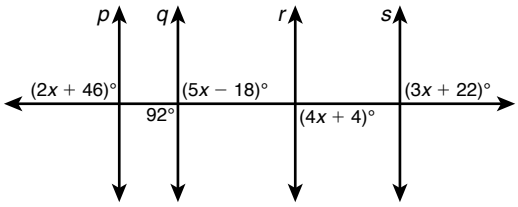
CHAPTER 8

Cumulative Test

continued

12. Which statement is true?



F $r \parallel s$ **H** $q \parallel s$

G $q \parallel r$ **J** $p \parallel q$

13. What is the slope of the line that passes through (11, 7) and (3, 8)?

A -8 **C** $\frac{14}{15}$

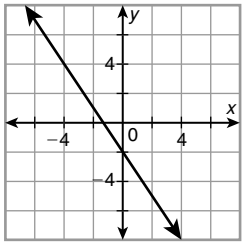
B $-\frac{1}{8}$ **D** $\frac{15}{14}$

14. What is the slope of a line parallel to a line whose slope is $-\frac{5}{2}$?

F $-\frac{5}{2}$ **H** $\frac{2}{5}$

G $-\frac{2}{5}$ **J** $\frac{5}{2}$

15. Which is an equation of the line in the graph?



A $y - 2 = -\frac{3}{2}x$ **C** $y + 2 = -\frac{3}{2}x$

B $y - 2 = \frac{2}{3}x$ **D** $y + 2 = -\frac{2}{3}x$

16. The graph of which equation intersects the graph of $y = -5x + 6$ in one point?

F $y - 5 = 5(x + 1)$

G $5x + y = -3$

H $10x + 2y = 3$

J $y - 5 = -5(x + 1)$

17. Which segment lengths are the lengths of the sides of a scalene triangle?

A 7, 7, 7 **C** 2, 3, 3

B 4, 5, 8 **D** 5, 5, 6

18. One angle of an obtuse triangle measures 16°. Which could be another angle measure of the triangle?

F 89° **H** 74°

G 80° **J** 4°

19. The sum of the measures of two angles of a triangle is 90°. Which type of triangle is it?

A right **C** equilateral

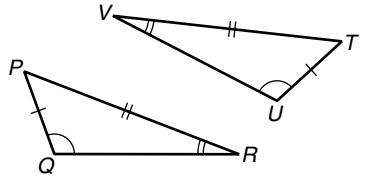
B obtuse **D** acute

20. A base angle of an isosceles triangle measures 32°. What is the measure of the exterior angle at the vertex?

F 16° **H** 64°

G 32° **J** 116°

21. Which CANNOT be used to justify the statement $\triangle PQR \cong \triangle TUV$?



A SSS **C** AAS

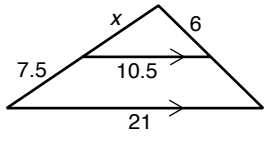
B SAS **D** ASA

22. A base angle of an isosceles triangle measures $(3x + 9)°$. The vertex angle measures $12x°$. What is the measure of the vertex angle?

F 12° **H** 132°

G 108° **J** 156°

23. What is the value of x?



A 3

B 6

C 7.5

D 10.5

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CHAPTER 8

Cumulative Test

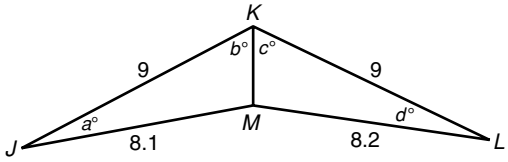
continued

24. In $\triangle RST$, $m\angle S = 49°$ and $m\angle T = 52°$. Which list shows the side lengths from least to greatest?

F *ST*, *RT*, *RS* **H** *RT*, *RS*, *ST*

G *ST*, *RS*, *RT* **J** *RT*, *ST*, *RS*

25. Which inequality MUST be true?



A $a > d$ **C** $b < c$

B $c < b$ **D** $a < d$

26. Which segment measures could be the lengths of the sides of an acute triangle?

F 10, 15, 16 **H** 11, $5\sqrt{6}$, 18

G 10, 12, $2\sqrt{61}$ **J** 11, 60, 61

27. The hypotenuse of a 30°-60°-90° triangle measures $10\sqrt{3}$ inches. What is the measure of the longer leg?

A 5 in. **C** 10 in.

B $5\sqrt{3}$ in. **D** 15 in.

28. One leg of a 45°-45°-90° triangle measures 12 centimeters. What is the length of the hypotenuse?

F $4\sqrt{3}$ cm **H** $12\sqrt{2}$ cm

G $6\sqrt{2}$ cm **J** $12\sqrt{3}$ cm

29. What is the measure of one interior angle of a regular polygon that has 40 sides?

A 9° **C** 140°

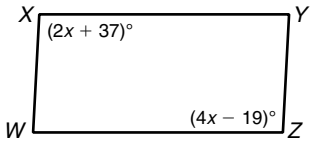
B 40° **D** 171°

30. The diagonals of a rhombus are congruent. What is the best name for the figure?

F parallelogram **H** rectangle

G rhombus **J** square

31. In $\square WXYZ$, find $m\angle W$.



A 87° **C** 91°

B 89° **D** 93°

32. One diagonal of a square divides the other into two segments measuring $8\sqrt{2}$ and $2y$. What is the perimeter of the square?

F $16\sqrt{2} + 2y$ **H** $32 + 2y\sqrt{2}$

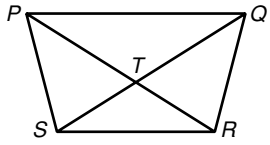
G $32 + 2y$ **J** 64

33. One of the diagonals of a kite bisects two of the angles into 50° and 44° angles. What is the measure of one of the other angles of the kite?

A 4° **C** 86°

B 8° **D** 172°

34. The figure *PQRS* is an isosceles trapezoid with $\overline{PS} \cong \overline{QR}$.

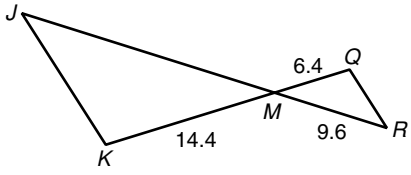


Which statement is NOT true?

F $\triangle PTS \cong \triangle QTR$ **H** $\triangle PSR \cong \triangle QRS$

G $\triangle PQT \cong \triangle RTS$ **J** $\triangle PQS \cong \triangle QPR$

35. In the figure, $\triangle JMK \sim \triangle RMQ$. What is *JM*?



A 9.6 **C** 14.4

B 11.2 **D** 21.6

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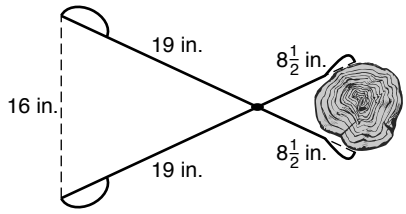
CHAPTER 8

Cumulative Test

continued

36. Raoul uses tongs to adjust logs in his fireplace. He opens the handles of the tongs 16 inches to move a log.



To the nearest inch, how wide is the log?

F 6 in. **H** 10 in.

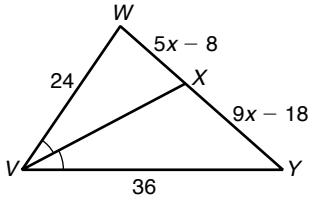
G 7 in. **J** 36 in.

37. Drake wants to reduce an 8-inch by 10-inch photo so that the width is 5 inches. What will be the measure of the length?

A 4 in. **C** 7 in.

B $6\frac{1}{4}$ in. **D** 16 in.

38. What is *WY*?



F 24 **H** 34

G 30 **J** 36

39. The shadow of a 6-foot man is 8 feet. At the same time, how long a shadow would a 90-foot monument cast?

A $6\frac{2}{5}$ in. **C** 67 ft 6 in.

B 1 ft $10\frac{1}{2}$ in. **D** 120 ft

40. A porch in an architectural plan is 15 inches long. If the scale in inches to feet is 2 : 3, how long will the actual porch be?

F 2.5 ft **H** 22.5 ft

G 10 ft **J** 60 ft

41. An altitude divides the hypotenuse of a right triangle into two segments measuring 3.6 and 6.4 centimeters. What is the length of the altitude?

A 4.8 cm **C** 10 cm

B 5 cm **D** 23.04 cm

42. One angle of a right triangle measures 27.4°. The adjacent leg measures 7 yards. To the nearest tenth of a yard, what is the measure of the hypotenuse?

F 3.6 yd **H** 7.9 yd

G 6.2 yd **J** 15.2 yd

43. To the nearest tenth, the sides of a right triangle measure 56, 33, and 65. To the nearest degree, what is the measure of the smallest angle?

A 30° **C** 32°

B 31° **D** 58°

44. A helicopter pilot sights a landmark at an angle of depression of 22°. The altitude of the helicopter is 1450 feet. To the nearest foot, what is the horizontal distance from the helicopter to the landmark?

F 543 ft **H** 3589 ft

G 586 ft **J** 3871 ft

45. Two sides of a triangular field measure 11.1 meters and 13 meters. The included angle measures 98°. Find the measure of the third side to the nearest tenth of a meter.

A 2.5 m **C** 18.2 m

B 15.9 m **D** 48.4 m

46. A motorboat heads N 15° W to cross a river flowing 7.25 miles per hour due east. The boat travels at the speed necessary to head due north. To the nearest mile per hour, how fast is the motorboat traveling?

F 2 mi/h **H** 27 mi/h

G 8 mi/h **J** 28 mi/h

Performance Assessment

1. a. 1.96

b. Possible answer: $25 - 1.96 = 23.04$; $RQ^2 = (23.04)(25)$; $RQ = 24$

c. Possible answer: $QS^2 = (23.04)(1.96)$; $QS = 6.72$

d. $\frac{7}{24}$

e. 16°

2. a. $15^2 = 6^2 + 16^2 - 2(6)(16)\cos K$

b. 70°

3. a. $\frac{\sin(180 - (85 + 70))^\circ}{LK} = \frac{\sin 70^\circ}{12}$

b. 5.4

4. Law of Sines; the given information includes two angles and one side. The Law of Cosines requires knowing either two sides and an angle or all three sides. The Law of Sines requires knowing a mix of both sides and angles.

Cumulative Test

1. D
2. G
3. D
4. G
5. B
6. F
7. C
8. J
9. B
10. H
11. A
12. G
13. B
14. F
15. C
16. F
17. B
18. J
19. A
20. H
21. A
22. G
23. C
24. H
25. C
26. F
27. D
28. H
29. D
30. J
31. A
32. J
33. C
34. G
35. D
36. G
37. B
38. G
39. D
40. H
41. A
42. H
43. B
44. H
45. C
46. J

CHAPTER 9

Section Quiz: Lessons 9-1 Through 9-3

1. C
2. F
3. A
4. H
5. D
6. H
7. A
8. G
9. D
10. F
11. A
12. G

Section Quiz: Lessons 9-4 Through 9-6

1. B
2. H
3. D
4. F
5. C
6. G
7. B
8. G
9. B

Chapter Test Form A: Multiple Choice

1. A
2. B
3. C
4. B
5. C
6. B
7. B
8. C
9. C
10. A
11. B
12. D
13. C
14. A
15. A
16. A
17. B
18. B