

CHAPTER 5

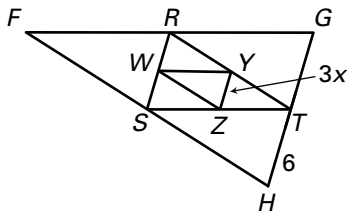
Standardized Test

For use after the chapter "Relationships within Triangles"

Multiple Choice

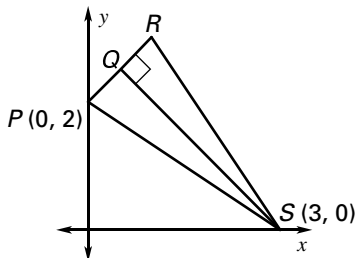
1. The segment connecting the midpoints of two sides of a triangle is parallel to the third side and is ____.
- (A) twice as long (B) half as long
(C) one third as long (D) the same length

2. If \overline{RS} , \overline{RT} , \overline{ST} , \overline{WY} , \overline{WZ} , and \overline{YZ} are all midsegments, find x .



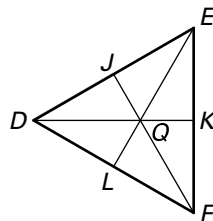
- (A) $\frac{1}{2}$ (B) 2 (C) 3 (D) 1

3. If \overline{QS} is the perpendicular bisector of \overline{PR} , find RS .



- (A) $\frac{3}{2}$ (B) $\sqrt{13}$ (C) $\sqrt{5}$ (D) $\frac{5}{2}$

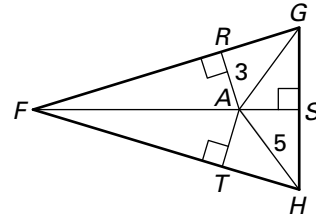
4. By the Concurrency of Perpendicular Bisectors Theorem, if \overline{QJ} , \overline{QK} , and \overline{QL} are perpendicular bisectors, then ____.



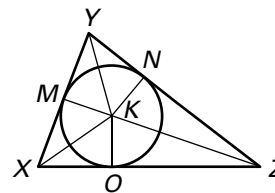
- (A) $\angle JQK \cong \angle KQL \cong \angle LQJ$
(B) $DE = EF = FD$
(C) $QD = QE = QF$
(D) $\angle EQK \cong \angle FQL \cong \angle DQJ$

5. Point A is the incenter of $\triangle FGH$. Find AS .

- (A) 3
(B) 2
(C) 4
(D) 5



6. Given the inscribed circle with center K , which statement can you *not* conclude?

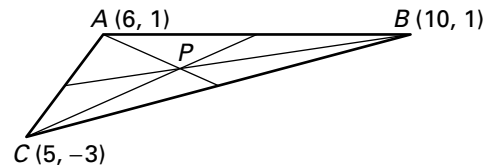


- (A) $XK = YK$ (B) $\angle NZK \cong \angle OKZ$
(C) $\overline{NK} \perp \overline{YZ}$ (D) $MK = OK$

7. The point of concurrency of the three medians of a triangle is called the ____ of the triangle.

- (A) tri-sector point (B) centrino
(C) median point (D) centroid

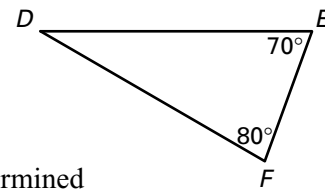
8. If point P is the centroid of $\triangle ABC$, find CP .



- (A) 5 (B) $\frac{10}{3}$ (C) $\frac{5}{3}$ (D) $\frac{7}{3}$

9. Which is the longest side of $\triangle DEF$?

- (A) \overline{DE}
(B) \overline{DF}
(C) \overline{EF}
(D) cannot be determined



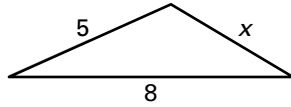
CHAPTER 5

Standardized Test *continued*

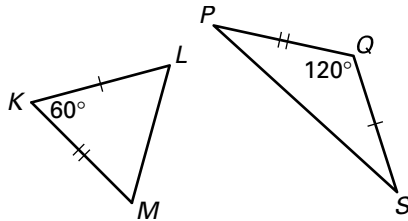
For use after the chapter "Relationships within Triangles"

10. Which is a possible value of x ?

- (A) 2
- (B) 4
- (C) 14
- (D) 17

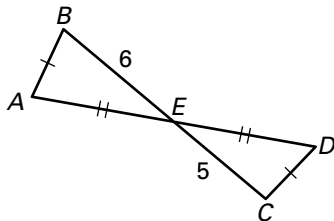


11. Using the Hinge Theorem and the diagram, you can conclude:



- (A) $m\angle KLM < m\angle QSP$
- (B) $QS = LM$
- (C) $PS > LM$
- (D) none of these

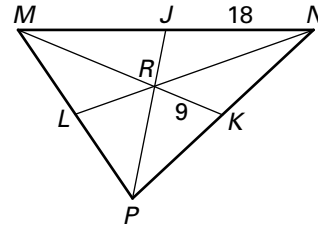
12. Based on the diagram, which is a true statement?



- (A) $m\angle A > m\angle D$
- (B) $m\angle A < m\angle D$
- (C) $m\angle A = m\angle D$
- (D) E is the midpoint of \overline{BC} .

Gridded Answer

13. R is the centroid of $\triangle MNP$ and $JP = 21$. Find the perimeter of $\triangle MJR$.



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2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Short Response

14. In $\triangle PQR$, $PQ = 20$ and $PR = 9$. Write an inequality to show all possible values for QR .

Extended Response

15. A campground has a convenience store located 100 yards due south of the shower facilities. There is a game room 100 yards due east of the convenience store.

- a. Camper A leaves the game room for the shower. What is the shortest travel distance possible?
- b. Camper B is doing laundry half way between the game room and the convenience store. Find the shortest distance Camper B can travel to get to the pool located half way between the store and the shower.
- c. Camper C is lost, standing at the convenience store facing west. If his tent is equidistant from the store, the shower, and the game room, provide two-step instructions to get Camper C back to the tent.

Answers for Relationships within Triangles

Quiz 1

1. 19 2. 12 3. 8 4. 10; Perpendicular Bisector Theorem 5. 14; Concurrency of Perpendicular Bisectors Theorem

Quiz 2

1. 7 2. 7 3. 6 4. 12 5. 4

Quiz 3

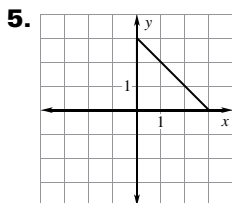
1. yes 2. No, $4 + 7 < 13$. 3. $1 < x < 11$
 4. $7 < x < 35$ 5. $\overline{BC}, \overline{AC}, \overline{AB}$
 6. $\angle D, \angle E, \angle F$ 7. $<$ 8. $=$

Chapter Test A

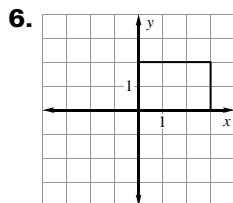
1. 68 2. 11 3. 12 4. 7.5 5. $(2h, 0)$
 6. $(\frac{h}{2}, k)$ 7. 8 8. 2 9. 15 10. 20 11. 18
 12. 9 13. $\overline{RS}, \overline{RQ}, \overline{QS}$ 14. $\angle B, \angle A, \angle C$
 15. yes 16. no 17. no 18. $<$ 19. $>$
 20. C, B, A, D

Chapter Test B

1. 50 2. 30 3. 7 4. $\frac{3}{4}$



$(0, 0), (0, 3), (3, 0)$



$(0, 0), (0, 2), (3, 2), (3, 0)$

7. 5 8. 9 9. 10 10. 25 11. 6 12. 3

13. $\overline{BC}, \overline{AB}, \overline{AC}$ 14. $\overline{QS}, \overline{QR}, \overline{RS}$

15. $4 < x < 16$ 16. $<$ 17. $>$ 18. $x \leq 15$

Chapter Test C

1. 32 2. 22 3. 18 4. $x = 10$ 5. $x = 48$

6. $x = 5$ 7. $x = 7$ 8. $(2, -1)$ 9. $(-1, -1)$

10. $x = 7$ 11. $x = 5$ 12. $x = \frac{9}{2}$

13. $\overline{BC}, \overline{AC}, \overline{AB}$; $\angle A, \angle B, \angle C$,

14. $\overline{FH}, \overline{HG}, \overline{FG}$; $\angle G, \angle F, \angle H$

15. $\overline{PR}, \overline{QR}, \overline{PQ}$; $\angle Q, \angle P, \angle R$

16. $\overline{TU}, \overline{ST}, \overline{SU}$; $\angle S, \angle U, \angle T$

17. yes; $\angle C, \angle A, \angle B$ 18. no 19. $<$

20. $=$ 21. $x < 21$ 22. $x < \frac{9}{2}$

Standardized Test

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

8. B 9. A 10. B 11. C 12. A 13. 43

14. $11 < QR < 29$ 15. a. 141.4 yd

b. By the Pythagorean Theorem, $a^2 + b^2 = c^2$, so $50^2 + 50^2 = c^2$ and $c \approx 70.7$. By the Midsegment Theorem, because the pool and laundry room are midpoints, the distance from the laundry room to the pool is half the distance from the game room to the shower. c. Turn clockwise 135° and walk forward 70.7 yards.

SAT/ACT Chapter Test

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

9. B 10. C 11. E 12. 18 13. 41

Alternative Assessment

1. Complete answers should include: an explanation that a coordinate proof involves placing geometric figures in a coordinate plane; an explanation that when variables are used to represent the coordinates of a figure in a coordinate proof, the results are true for all figures of the given type; an example of a coordinate proof; an explanation that an indirect proof involves the assumption that the desired conclusion is false and that this original assumption must be shown to be impossible; an example of an indirect proof.

2. a. $(65, 50)$ and $(100, 50)$ b. 35 units c. No. Because the triangle is obtuse, the circumcenter will lie outside of the rose garden. d. about $(70, 30)$ e. about $(20, 110)$ f. about $(177, 110)$ g. The length of the third side must be less than 7 feet and greater than 1 foot.