

# Standardized Test Practice

For use with pages 194–201

**TEST TAKING STRATEGY** If you find yourself spending too much time on one test question and getting frustrated, move on to the next question. You can revisit a difficult problem later with a fresh perspective.

1. **Multiple Choice** A triangle with three acute angles and no congruent sides is \_\_\_\_?

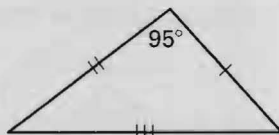
(A) an equiangular triangle  
(B) a right triangle  
(C) an isosceles triangle  
(D) an obtuse triangle  
(E) an acute scalene triangle

2. **Multiple Choice** A triangle with side lengths of 5 cm, 3 cm, and 5 cm is \_\_\_\_?

(A) an equilateral triangle  
(B) an obtuse triangle  
(C) an isosceles triangle  
(D) an acute triangle  
(E) a scalene triangle

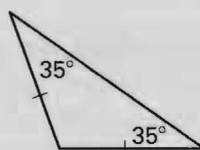
3. **Multiple Choice** The triangle below can be classified as \_\_\_\_?

(A) acute isosceles  
(B) acute scalene  
(C) obtuse isosceles  
(D) obtuse scalene  
(E) right scalene



4. **Multiple Choice** The triangle below can be classified as \_\_\_\_?

(A) acute isosceles  
(B) acute scalene  
(C) obtuse isosceles  
(D) obtuse scalene  
(E) right scalene

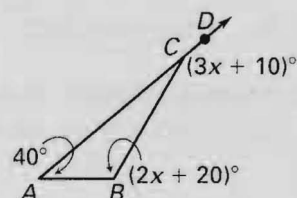


5. **Multiple Choice** An isosceles triangle has a perimeter of 82 cm. The lengths of the legs of the triangle are represented by  $(3x + 2)$  and  $(5x - 14)$ . Find the length of the base of the triangle.

(A) 8 cm      (B) 16 cm      (C) 26 cm  
(D) 30 cm      (E) 52 cm

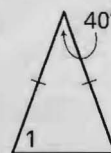
6. **Multiple Choice** Find the measure of  $\angle BCD$ .

(A)  $50^\circ$   
(B)  $120^\circ$   
(C)  $60^\circ$   
(D)  $160^\circ$   
(E)  $20^\circ$



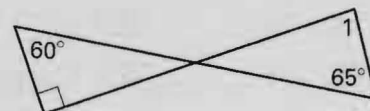
7. **Multiple Choice** Find the measure of  $\angle 1$ .

(A)  $40^\circ$   
(B)  $70^\circ$   
(C)  $80^\circ$   
(D)  $140^\circ$   
(E) Cannot be determined



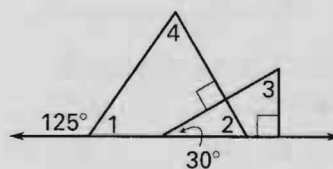
8. **Multiple Choice** Find the measure of  $\angle 1$ .

(A)  $50^\circ$   
(B)  $90^\circ$   
(C)  $60^\circ$   
(D)  $30^\circ$   
(E)  $85^\circ$



9. **Quantitative Comparison** Choose the statement below which is true about the given number.

(A) The value in column A is greater.  
(B) The value in column B is greater.  
(C) The two values are equal.  
(D) The relationship cannot be determined from the given information.



| Column A    | Column B    |
|-------------|-------------|
| $m\angle 1$ | $m\angle 2$ |

# Standardized Test Practice

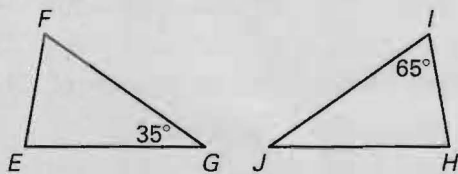
For use with pages 202–210

**TEST TAKING STRATEGY** One of the best ways to prepare for the SAT is to keep up with your regular studies and do your homework.

1. **Multiple Choice** If  $\triangle ABC \cong \triangle XYZ$ , which of the following statements below is *not* true?

(A)  $\angle B \cong \angle Y$  (B)  $\overline{AB} \cong \overline{XY}$   
(C)  $\angle CBA \cong \angle ZXY$  (D)  $\overline{AC} \cong \overline{XZ}$   
(E)  $\angle BAC \cong \angle YXZ$

2. **Multiple Choice** In the diagram,  $\triangle EFG \cong \triangle HIJ$ . What is the measure of  $\angle H$ ?

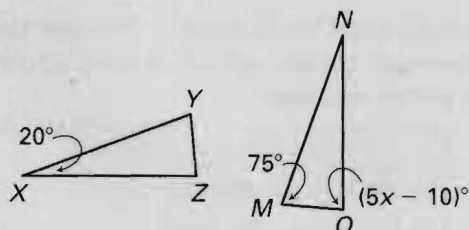


(A) 35° (B) 65° (C) 70°  
(D) 80° (E) Cannot be determined

3. **Multiple Choice** In the diagram in Exercise 2,  $EG = ?$ .

(A) HI (B) HJ (C) JI  
(D) FG (E) Cannot be determined

4. **Multiple Choice** Given  $\angle X \cong \angle N$  and  $\angle Z \cong \angle O$ , find the value of  $x$ .

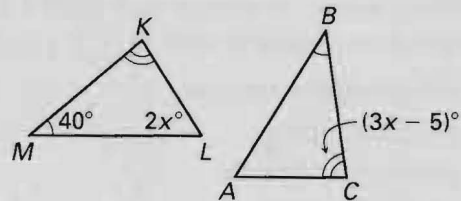


(A) 19 (B) 38 (C) 95  
(D) 85 (E) 20

5. **Multiple Choice** Use the diagram in Exercise 4 to find  $m\angle Z$ .

(A) 19° (B) 38° (C) 95°  
(D) 85° (E) 20°

6. **Multiple Choice** Given  $\angle M \cong \angle B$  and  $\angle K \cong \angle C$ , find the value of  $x$ .

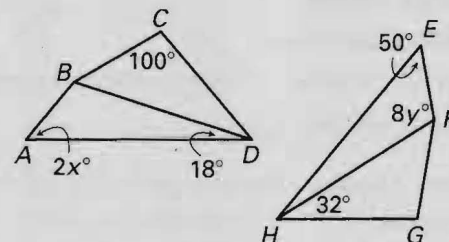


(A) 43 (B) 40 (C) 82  
(D) 58 (E) 29

**Quantitative Comparison** In Exercises 7 and 8, use the given information to find the indicated value. Choose the statement below that is true about the given value.

- (A) The value in column A is greater.  
(B) The value in column B is greater.  
(C) The two values are equal.  
(D) The relationship cannot be determined from the given information.

Given:  $ABCD \cong EFGH$



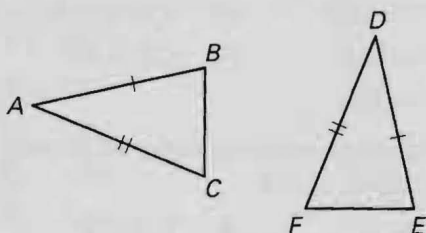
|    | Column A      | Column B      |
|----|---------------|---------------|
| 7. | $x$           | $y$           |
| 8. | $m\angle CBD$ | $m\angle GHE$ |

# Standardized Test Practice

For use with pages 212–219

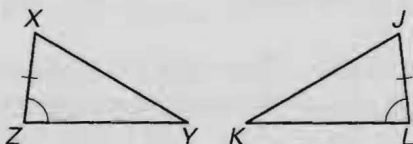
**TEST TAKING STRATEGY** Work as quickly as you can through the easier sections, but avoid making careless errors on easy questions.

1. **Multiple Choice** Use the diagram below. Which additional congruence is needed to prove  $\triangle ABC \cong \triangle DEF$ ?



- (A)  $\angle B \cong \angle E$ ; SAS Congruence Postulate  
 (B)  $\overline{BC} \cong \overline{FE}$ ; SSS Congruence Postulate  
 (C)  $\angle A \cong \angle D$ ; SAS Congruence Postulate  
 (D) A or B  
 (E) B or C

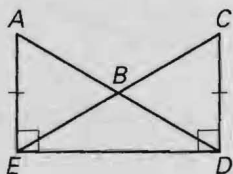
2. **Multiple Choice** Use the diagram below. Which congruence is needed to prove  $\triangle XYZ \cong \triangle JKL$ ?



- (A)  $\angle Y \cong \angle K$ ; SAS Congruence Postulate  
 (B)  $\overline{XY} \cong \overline{JK}$ ; SAS Congruence Postulate  
 (C)  $\overline{ZY} \cong \overline{LK}$ ; SAS Congruence Postulate  
 (D) A or B  
 (E) B or C

**Multiple Choice** Use the following choices to complete the proofs that  $\triangle AED \cong \triangle CDE$  and  $\triangle ABE \cong \triangle DBC$ .  
 Given:  $B$  is the midpoint of  $\overline{EC}$  and  $\overline{AD}$ .

- (A) Given  
 (B) Def. of midpoint  
 (C) Reflexive Prop. of Congruence  
 (D) SSS Congruence Postulate  
 (E) SAS Congruence Postulate



| Statements  | Reasons     |
|---|-------------|
| a. $\overline{AE} \cong \overline{CD}$  | a. 3. _____ |
| b. $\angle AED \cong \angle CDE$  | b. 4. _____ |
| c. $\overline{ED} \cong \overline{ED}$  | c. 5. _____ |
| d. $\triangle AED \cong \triangle CDE$  | d. 6. _____ |
| Statements  | Reasons     |
| e. $B$ is the midpoint of $\overline{AD}$ and $\overline{EC}$ .                 | e. 7. _____ |
| f. $\overline{BC} \cong \overline{BE}$ ,<br>$\overline{AB} \cong \overline{BD}$ | f. 8. _____ |
| g. $\triangle ABE \cong \triangle DBC$  | g. 9. _____ |

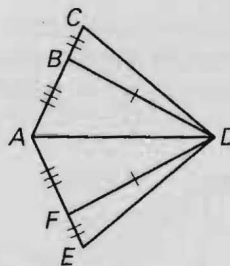
10. **Multiple Choice** In rectangle  $ABCD$ , a diagonal is drawn from  $B$  to  $D$ . Which statement is not true?

- (A)  $\angle DAB \cong \angle BCD$  (B)  $\angle ABD \cong \angle CDB$   
 (C)  $\overline{AB} \cong \overline{BC}$  (D)  $\overline{DB} \cong \overline{DB}$   
 (E)  $\angle ADB \cong \angle CBD$

11. **Multiple Choice** In  $\triangle MNO$  and  $\triangle XYZ$ ,  $\overline{MN} \cong \overline{XY}$  and  $\overline{NO} \cong \overline{YZ}$ . If the triangles are congruent, what else must be true?

- (A)  $\angle N \cong \angle Y$  (B)  $\angle M \cong \angle Z$   
 (C)  $\overline{MO} \cong \overline{XZ}$  (D) A and C  
 (E) All of the above

12. **Multi-Step Problem**



- a. Prove that  $\triangle ADF \cong \triangle ADB$ .  
 b. Prove that  $\triangle ACD \cong \triangle AED$ .  
 c. Prove that  $\triangle BCD \cong \triangle FED$ .

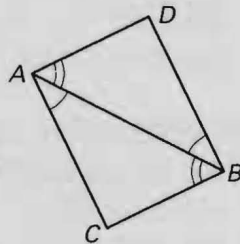
# Standardized Test Practice

For use with pages 220–227

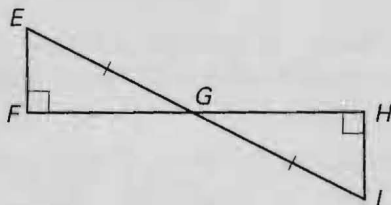
**TEST TAKING STRATEGY** Do not panic if you run out of time before answering all of the questions. You can still receive a high test score without answering every question.

1. **Multiple Choice** Which postulate or theorem can be used to prove that  $\triangle ABC \cong \triangle BAD$ ?

- (A) SSS  
(B) SAS  
(C) ASA  
(D) AAS  
(E) none of the above



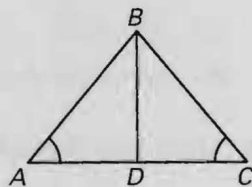
2. **Multiple Choice** Which postulate or theorem can be used to prove that  $\triangle EFG \cong \triangle IHG$ ?



- (A) SSS (B) SAS (C) ASA  
(D) AAS (E) none of the above

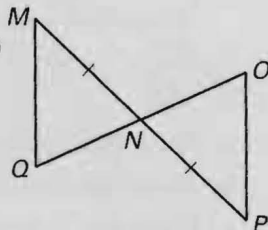
3. **Multiple Choice** What is the third congruence needed to prove that  $\triangle ABD \cong \triangle CBD$  by AAS?

- (A)  $\overline{AB} \cong \overline{BC}$   
(B)  $\angle ABD \cong \angle CBD$   
(C)  $\overline{AD} \cong \overline{DC}$   
(D)  $\angle DBA \cong \angle CDB$   
(E) B or C



4. **Multiple Choice** What is the third congruence needed to prove that  $\triangle MNQ \cong \triangle PNO$  by ASA?

- (A)  $\angle Q \cong \angle P$   
(B)  $\angle MNQ \cong \angle PNO$   
(C)  $\angle M \cong \angle O$   
(D)  $\angle M \cong \angle P$   
(E)  $\overline{QN} \cong \overline{NO}$



5. **Multiple Choice** You are given the following information about  $\triangle GHI$  and  $\triangle EFD$ .

- I.  $\angle G \cong \angle E$  II.  $\angle H \cong \angle F$   
III.  $\angle I \cong \angle D$  IV.  $\overline{GH} \cong \overline{EF}$   
V.  $\overline{GI} \cong \overline{ED}$

Which combination cannot be used to prove that  $\triangle GHI \cong \triangle EFD$ ?

- (A) V, IV, II (B) II, III, V  
(C) III, V, I (D) V, IV, I  
(E) none of the above

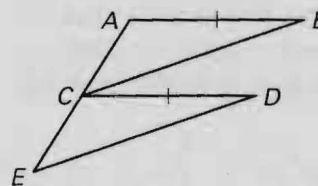
6. **Multiple Choice** Given that  $\angle X \cong \angle D$ , and  $\overline{DE} \cong \overline{XW}$ , what is the third congruence needed to prove that  $\triangle XWY \cong \triangle DEC$  by ASA?

- (A)  $\angle Y \cong \angle C$  (B)  $\angle Y \cong \angle E$   
(C)  $\angle W \cong \angle C$  (D)  $\angle W \cong \angle E$   
(E) none of the above

7. **Multiple Choice** Given that  $\angle G \cong \angle E$  and  $\angle I \cong \angle D$ , what is the third congruence needed to prove that  $\triangle GHI \cong \triangle EFD$  by AAS?

- (A)  $\angle H \cong \angle F$  (B)  $\overline{HI} \cong \overline{ED}$   
(C)  $\overline{HI} \cong \overline{FD}$  (D)  $\overline{ED} \cong \overline{GI}$   
(E) none of the above

8. **Multi-Step Problem** In the diagram,  $\overline{AB} \parallel \overline{CD}$ ,  $\overline{CB} \parallel \overline{DE}$ , and  $\overline{AB} \cong \overline{CD}$ .



- a. Prove that  $\triangle ABC \cong \triangle CDE$ .  
b. Prove that C is the midpoint of  $\overline{AE}$ .

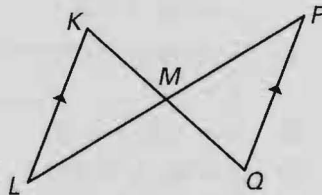
# Standardized Test Practice

For use with pages 229–235

**TEST TAKING STRATEGY** Make sure that you are familiar with the directions before taking a standardized test. This way, you do not need to worry about the directions during the test.

1. **Multiple Choice** Which postulate or theorem can be used to prove that the triangles are congruent given  $M$  is the midpoint of  $\overline{KQ}$  and  $\overline{KL} \parallel \overline{PQ}$ ?

- (A) SSS
- (B) SAS
- (C) ASA
- (D) AAS
- (E) AAA



2. **Multiple Choice** Which statement correctly describes the congruence of the triangles in Exercise 1?

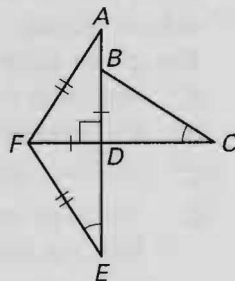
- (A)  $\triangle KML \cong \triangle PQM$
- (B)  $\triangle KLM \cong \triangle PQM$
- (C)  $\triangle KML \cong \triangle QMP$
- (D)  $\triangle KLM \cong \triangle PMQ$
- (E)  $\triangle KML \cong \triangle MQP$

3. **Multiple Choice** After proving the triangles congruent in Exercise 1, what reason could you give to prove  $\overline{KL} \cong \overline{PQ}$ ?

- (A) Vertical Angles Theorem
- (B) Reflexive Prop. of Congruence
- (C) Corresp. parts of  $\cong \triangle$  are  $\cong$ .
- (D) ASA
- (E) Definition of midpoint

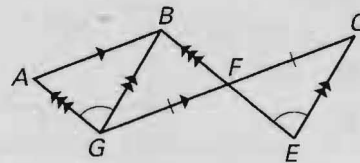
4. **Multiple Choice** You want to prove  $\overline{BC} \cong \overline{AF}$ . As a first step, which pair of triangles would you prove congruent?

- (A)  $\triangle ADF \cong \triangle CDB$
- (B)  $\triangle ADF \cong \triangle EDF$
- (C)  $\triangle BCD \cong \triangle FED$
- (D) B or C
- (E) Any of the above



- Multiple Choice** In Exercises 5–13, use the choices below to complete the proof that  $\overline{AG} \cong \overline{FE}$ .

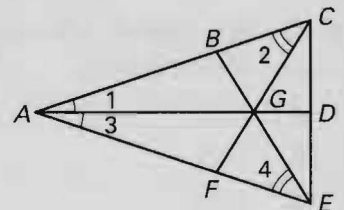
- (A) Alternate Interior Angles Theorem
- (B) ASA Congruence Postulate
- (C) Corresp. parts of  $\cong \triangle$  are  $\cong$ .
- (D) Vertical Angles Theorem
- (E) Definition of Congruence



| Statements   | Reasons                   |
|--|---------------------------|
| a. $\overline{AB} \parallel \overline{GC}, \overline{GB} \parallel \overline{EC},$<br>$\overline{AG} \parallel \overline{BE}, \overline{GF} \cong \overline{FC},$<br>$\angle AGB \cong \angle FEC$ | a. Given                  |
| b. $\angle BFG \cong \angle EFC$   | b. 5. _____               |
| c. $\angle BGF \cong \angle ECF$   | c. 6. _____               |
| d. $\triangle BGF \cong \triangle ECF$   | d. 7. _____               |
| e. $\overline{BG} \cong \overline{EC}$   | e. 8. _____               |
| f. $\angle ABG \cong \angle FGB$   | f. 9. _____               |
| g. $m\angle ABG = m\angle FGB,$<br>$m\angle BGF = m\angle ECF$   | g. 10. _____              |
| h. $m\angle ABG = m\angle ECF$   | h. Sub. prop. of equality |
| i. $\angle ABG \cong \angle ECF$   | i. 11. _____              |
| j. $\triangle ABG \cong \triangle FCE$   | j. 12. _____              |
| k. $\overline{AG} \cong \overline{FE}$   | k. 13. _____              |

14. **Multi-Step Problem** In the diagram,  $\angle 1 \cong \angle 3$  and  $\angle 2 \cong \angle 4$ .

- a. Prove that  $\triangle AGC \cong \triangle AGE$ .
- b. Prove that  $\triangle BCG \cong \triangle FEG$ .
- c. Prove that  $\triangle CDG \cong \triangle EDG$ .





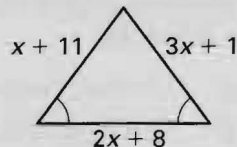
# Standardized Test Practice

For use with pages 236–242

**TEST TAKING STRATEGY** Avoid spending too much time on one question. Skip questions that are too difficult for you, and spend no more than a few minutes on each question.

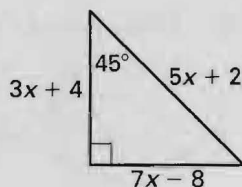
1. **Multiple Choice** What is the value of  $x$ ?

- (A) 3  
(B) 5  
(C) 7  
(D) 9  
(E) 11



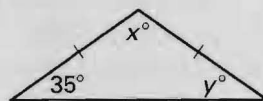
2. **Multiple Choice** What is the length of a leg?

- (A) 3 (B) 17  
(C) 12 (D) 13  
(E) 19



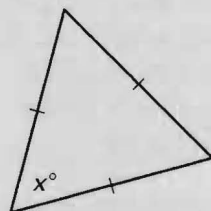
3. **Multiple Choice** What are the values of  $x$  and  $y$ ?

- (A)  $x = 72.5, y = 72.5$   
(B)  $x = 35, y = 35$   
(C)  $x = 35, y = 110$   
(D)  $x = 55, y = 55$   
(E)  $x = 110, y = 35$



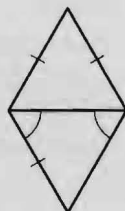
4. **Multiple Choice** What is the value of  $x$ ?

- (A) 30  
(B) 60  
(C) 90  
(D) 100  
(E) Cannot be determined



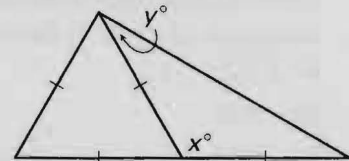
5. **Multiple Choice** Choose the reason the triangles are congruent.

- (A) SSS  
(B) SAS  
(C) AAS  
(D) ASA  
(E) Cannot be proven congruent



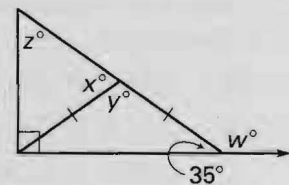
6. **Multiple Choice** Solve for  $x$  and  $y$ .

- (A)  $x = 120, y = 60$   
(B)  $x = 60, y = 60$   
(C)  $x = 30, y = 120$   
(D)  $x = 120, y = 30$   
(E)  $x = 60, y = 120$



7. **Multiple Choice** Solve for  $x$  and  $y$ .

- (A)  $x = 70, y = 55$   
(B)  $x = 55, y = 110$   
(C)  $x = 70, y = 110$   
(D)  $x = 70, y = 145$   
(E)  $x = 55, y = 145$

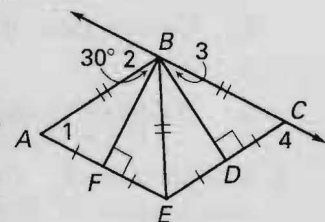


8. **Multiple Choice** Use the diagram in Exercise 7 to solve for  $w$  and  $z$ .

- (A)  $w = 145, z = 70$  (B)  $w = 110, z = 55$   
(C)  $w = 110, z = 70$  (D)  $w = 145, z = 55$   
(E)  $w = 70, z = 55$

9. **Quantitative Comparison**

Use the diagram to find the missing values. Choose the statement below that is true about the given values.



- (A) The value in column A is greater.  
(B) The value in column B is greater.  
(C) The two values are equal.  
(D) The relationship cannot be determined from the given information.

| Column A    | Column B    |
|-------------|-------------|
| $m\angle 1$ | $m\angle 3$ |

# Standardized Test Practice

For use with pages 243–250

**TEST TAKING STRATEGY** Staying physically relaxed during the SAT is very important. If you find yourself tensing up, put your pencil down and take a couple of deep breaths. This will help you stay calm.

1. **Multiple Choice** An isosceles right triangle has a vertex at  $(0, 0)$  and another at  $(0, 8)$ . If its legs are 8 units, what point below *might* be the third vertex?

(A)  $(8, 0)$  (B)  $(-8, 0)$   
(C)  $(0, -8)$  (D) A or B  
(E) All of the above

2. **Multiple Choice** A rectangle with sides of 3 units and 6 units is placed on a coordinate plane. If one vertex is at  $(0, 0)$ , which set of points could be the other vertex points?

(A)  $(0, 6), (6, 3), (3, 6)$   
(B)  $(3, 0), (0, 6), (3, 6)$   
(C)  $(-3, 0), (-3, 6), (0, -6)$   
(D)  $(3, 0), (0, -6), (-3, -6)$   
(E) All of the above

3. **Multiple Choice** A right triangle has legs of 8 units and 10 units. Use a coordinate plane to solve for the hypotenuse.

(A)  $\sqrt{18}$  (B)  $4\sqrt{5}$  (C)  $2\sqrt{41}$   
(D) 80 (E)  $3\sqrt{2}$

4. **Multiple Choice** A rectangle with length  $h$  and width  $k$  is placed in a coordinate plane with one vertex at  $(0, 0)$ . What is a possible point for the vertex diagonal to  $(0, 0)$ ?

(A)  $(0, h)$  (B)  $(h, 0)$  (C)  $(0, -k)$   
(D)  $(h, -k)$  (E)  $(-h, 0)$

5. **Multiple Choice** Use the diagram in Exercise 6 to find the length of  $\overline{MP}$ .  $M$  is the midpoint of  $\overline{PQ}$ .

(A) 25 (B) 50 (C) 40  
(D) 30 (E) 125

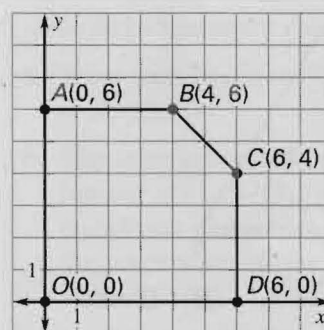
6. **Multiple Choice** What are the coordinates of the midpoint  $M$ ?

(A)  $(40, 30)$   
(B)  $(60, 40)$   
(C)  $(30, 80)$   
(D)  $(60, 30)$   
(E)  $(30, 40)$



**Quantitative Comparison** In Exercises 7 and 8, use the diagram below. Choose the statement below that is true about the given value.

- (A) The value in column A is greater.  
(B) The value in column B is greater.  
(C) The two values are equal.  
(D) The relationship cannot be determined from the given information.



|    | Column A | Column B |
|----|----------|----------|
| 7. | AD       | BC + CD  |
| 8. | OB       | OC       |