

# Geometry - Theorems About Triangles - Quiz

Common Core G-CO.C.10 · maths-pdf.fr/en/

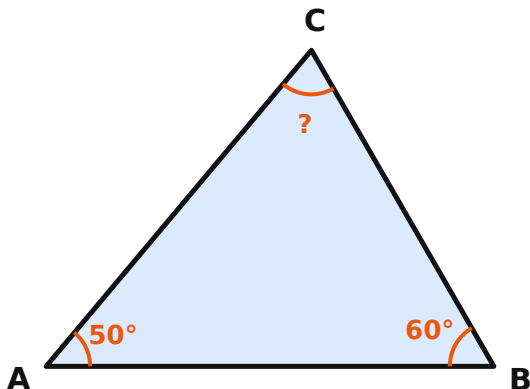
Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Test your understanding of triangle theorems with this 10-question multiple-choice quiz. Each question has one correct answer, and the explanation after it names the typical mistake behind the wrong choices. Take it after the lesson or before the test.

**Geometry** · Common Core State Standards: **G-CO.C.10**

## Questions

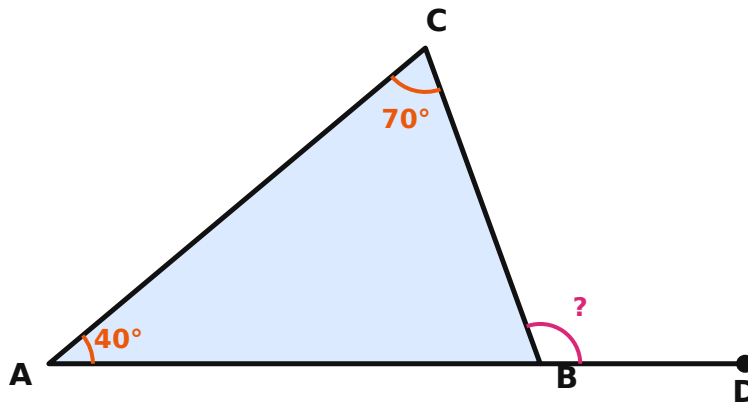
### Question 1



What is the third angle?

- A. 70 degrees
- B. 110 degrees
- C. 80 degrees
- D. 130 degrees

### Question 2



What is the exterior angle at B?

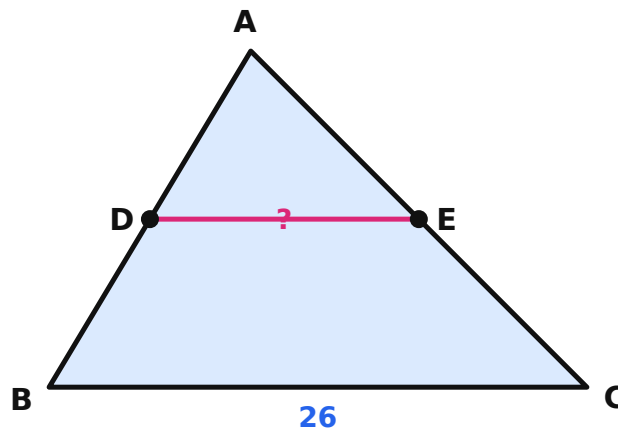
- A. 70 degrees
- B. 110 degrees
- C. 140 degrees
- D. 180 degrees

### Question 3

An isosceles triangle has a vertex angle of 50 degrees. How large is each base angle?

- A. 50 degrees
- B. 130 degrees
- C. 80 degrees
- D. 65 degrees

### Question 4



DE is a midsegment and  $BC = 26$ . What is DE?

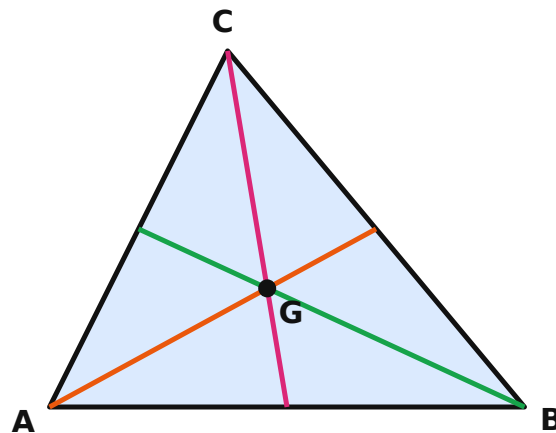
- A. 26
- B. 52
- C. 13
- D. 6.5

### Question 5

Which set of lengths can be the sides of a triangle?

- A. 3, 4, 8
- B. 5, 5, 10
- C. 7, 10, 12
- D. 2, 6, 9

### Question 6



The centroid G is on a median of length 21. How far is G from the vertex?

- A. 7
- B. 10.5
- C. 21
- D. 14

### Question 7

What is the centroid of the triangle with vertices (0, 0), (9, 3) and (3, 9)?

- A. (4, 4)
- B. (6, 6)
- C. (3, 3)
- D. (4.5, 4.5)

### Question 8

Two sides of a triangle are 8 and 11. Which could be the third side?

- A. 3
- B. 5
- C. 19
- D. 20

### Question 9

The angles of a triangle are  $x$ ,  $2x$  and  $6x$ . What is the largest angle?

- A. 120 degrees
- B. 20 degrees
- C. 40 degrees
- D. 60 degrees

### Question 10

In triangle ABC,  $AB = AC$  and angle B = 72 degrees. What is angle A?

- A. 72 degrees
- B. 36 degrees
- C. 108 degrees
- D. 18 degrees

## Answers

1. **A** - The angles add to 180, so  $180 - 50 - 60 = 70$ . The value 110 is  $50 + 60$ , the sum of the two known angles.
2. **B** - The exterior angle equals the sum of the remote interior angles:  $40 + 70 = 110$ .
3. **D** - The base angles share  $180 - 50 = 130$ , so each is 65 degrees.
4. **C** - A midsegment is half as long as the parallel side, so  $26 / 2 = 13$ .
5. **C** - Only  $7 + 10 > 12$  and the other sums also work. In 5, 5, 10 the two short sides sum to exactly 10, not more.
6. **D** - The centroid is  $2/3$  of the way from the vertex:  $2/3$  of 21 is 14. The distance 7 is from the midpoint of the side.
7. **A** - Average the coordinates:  $(0 + 9 + 3)/3 = 4$  and  $(0 + 3 + 9)/3 = 4$ .
8. **B** - The third side must be between  $11 - 8 = 3$  and  $11 + 8 = 19$ , not including the endpoints. Only 5 is inside the range.
9. **A** -  $9x = 180$  gives  $x = 20$ , so the largest angle is  $6(20) = 120$ . The value 20 is  $x$  itself.
10. **B** - Angle C is also 72, so angle A =  $180 - 144 = 36$  degrees.

## Remember

- Triangle angle sum: 180 degrees.
- Exterior angle = sum of the two remote interior angles.
- Isosceles triangle: base angles are congruent; equilateral angles are 60 degrees each.
- Midsegment: parallel to the third side and half its length.
- Medians meet at the centroid, two thirds of the way from each vertex.