

Grade 7 · Drawing Geometric Figures and Constructing Triangles · Quiz

Common Core 7.G.A.2 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

Take this ten-question multiple-choice quiz to practice constructing triangles from Common Core standard 7.G.A.2. Each question has exactly one correct answer. The explanation after each question shows the inequality or angle sum and names the most common mistake.

Grade 7 Common Core: 7.G.A.2

Questions

Question 1

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

- A. 4, 6, 10
- B. 3, 3, 7
- C. 5, 7, 11
- D. 2, 9, 12

Question 2

Two sides of a triangle are 6 in. and 10 in. Which length is possible for the third side?

- A. 12 in.
- B. 4 in.
- C. 16 in.
- D. 20 in.

Question 3

Which set of measures can be the three angles of a triangle?

- A. 40° , 65° , 75°
- B. 45° , 65° , 80°
- C. 50° , 60° , 80°

D. 30° , 70° , 90°

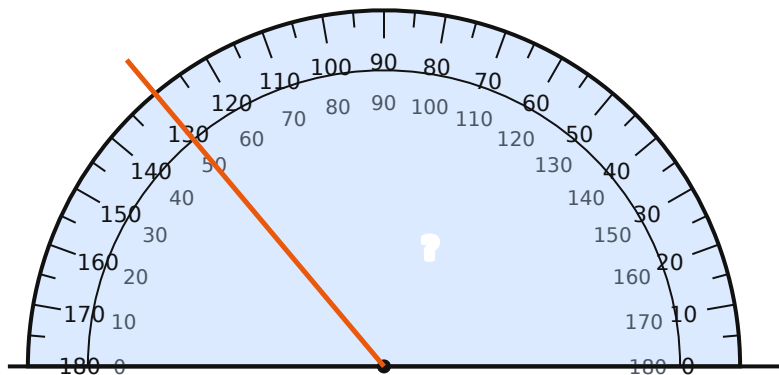
Question 4

Two angles of a triangle measure 52° and 67° . What is the third angle?

- A. 119°
- B. 71°
- C. 61°
- D. 29°

Question 5

One side of the angle is on the 0 line at the right. What is the measure of the angle?



Angle on a protractor.

- A. 130°
- B. 50°
- C. 140°
- D. 40°

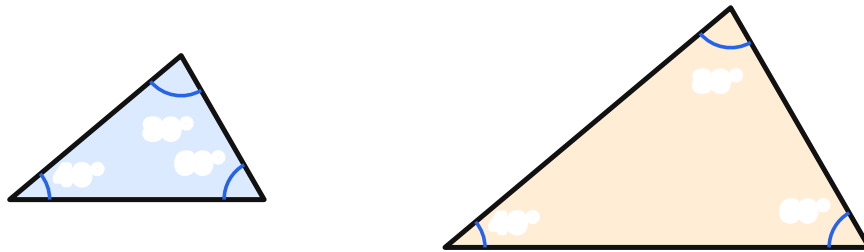
Question 6

Which measurements always give exactly one triangle?

- A. Three angles
- B. Two sides and an angle not between them
- C. One side and one angle
- D. Two sides and the angle between them

Question 7

Both triangles have angles of 40° , 60° , and 80° . Which statement is true?

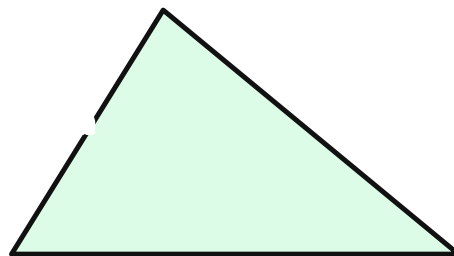


Two triangles with the same angles.

- A. They must be exactly the same size because the angles match
- B. They cannot exist because the angles are too large
- C. The larger triangle must have larger angles
- D. They can have different sizes, so three angles do not fix one triangle

Question 8

The sides of a triangle are 9 cm, 14 cm, and x cm. What is the greatest whole-number value of x ?

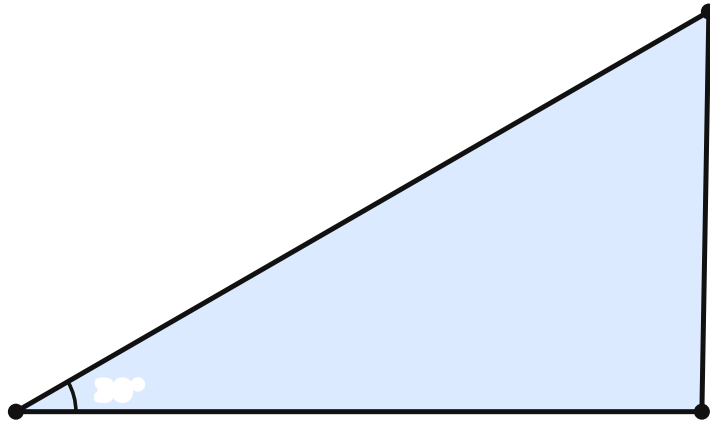


Triangle with an unknown third side.

- A. 23
- B. 22
- C. 5
- D. 6

Question 9

Angle A is 30° , $AC = 12$ cm, and $BC = 7$ cm. How many triangles ABC can be drawn?



Triangle with angle A, AC, and BC given.

- A. Exactly one
- B. No triangle
- C. Infinitely many
- D. Exactly two

Question 10

Priya has two sticks that are 8 in. long and one stick that is 16 in. long. Can she form a triangle with all three?

- A. Yes, because two of the sticks are equal
- B. No, because $8 + 8 = 16$ is not greater than 16
- C. Yes, because $8 + 8$ is at least 16
- D. No, because the sticks do not have three different lengths

Answer key

1. **C** - $5+7=12>11$, so these lengths work. In the other sets the two shorter sides add up to 10, 6, and 11, which is not more than the longest side of 10, 7, and 12.
2. **A** - The third side must be greater than $10-6=4$ and less than $6+10=16$. A length of 4 or 16 makes the sticks lie flat, and 20 is too long.
3. **A** - $40+65+75=180$. The other sets add up to 190 degrees each, which is too much.
4. **C** - $52+67=119$, and $180-119=61$. The value 119° forgets to subtract from 180° .
5. **A** - Read the scale that starts at 0 on the side lying along the baseline. The reading is 130. The value 50 comes from the other scale.
6. **D** - Two sides and the angle between them fix the third side and the other angles. Three angles allow many sizes, and a non-included angle can give two triangles.
7. **D** - The angles fix the shape but not the size. Making a triangle larger does not change its angles.
8. **B** - The third side must be less than $9+14=23$, so the greatest whole number is 22. The value 23 does not work because it is not less than 23.
9. **D** - The height from C to the other ray is $12\times 0.5=6$ cm, and $12>7>6$, so a 7 cm arc from C crosses the ray twice.
10. **B** - The two shorter sticks add up to exactly 16, so they lie flat along the long stick. The sum must be greater than the third side, and equal sticks do not matter.

Remember:

- Triangle inequality: the sum of any two side lengths must be greater than the third side length.
- The three angles of a triangle always add up to 180° .
- Three sides, two sides with the angle between them, or two angles with a side give exactly one triangle when a triangle is possible.
- Three angles alone give infinitely many triangles that have the same shape but different sizes.
- Two sides and an angle that is not between them can give no triangle, one triangle, or two triangles.