

Grade 7 · Drawing Geometric Figures and Constructing Triangles · Test Answer Key

Common Core 7.G.A.2 · mathovore.fr

This answer key for the constructing triangles test shows a worked solution for every question, together with a scoring guide that explains how the 20 points are awarded. Give partial credit for a correct inequality or angle sum even when a later step has an arithmetic slip.

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

Question 1: Triangle inequality (3 points)

- a. $6+9=15 > 14$: **yes**
- b. $5+7=12$, not greater than 12: **no**
- c. $8+8=16 > 15$: **yes**

Scoring: 1 point per part. Award the point for the correct yes/no answer supported by the correct sum.

Question 2: Third side (2 points)

The third side x must satisfy $8+11=19 > x$ and $x > 11-8=3$.

- a. **4 in.**
- b. **18 in.**

Scoring: 1 point per part. Answers of 3 in. or 19 in. earn no point because those lengths fail the inequality.

Question 3: Angle measures (2 points)

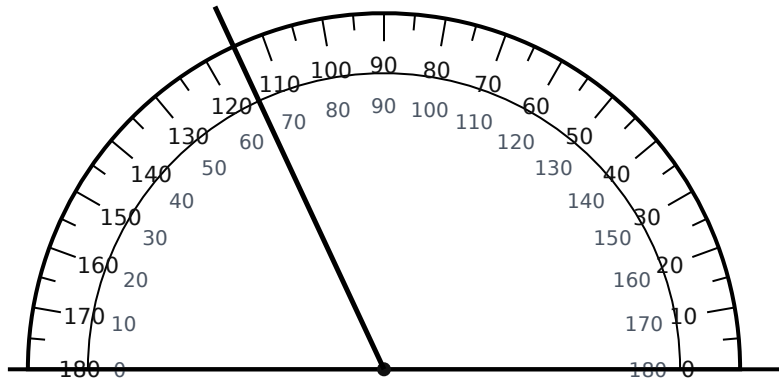
- a. $48+77=125$ and $180-125=55$: 55°
- b. $38+64+79=181$, which is not 180. **No.**

Scoring: 1 point per part. Part (b) needs the sum 181 or a statement that the sum is not 180° .

Question 4: Protractor angle (2 points)

- a. The side crosses the outer scale at 115: 115°
- b. The other two angles add up to $180-115=65$, and each must be greater than 0. The

largest whole number is 64° .



The angle measures 115° .

Scoring: 1 point per part.

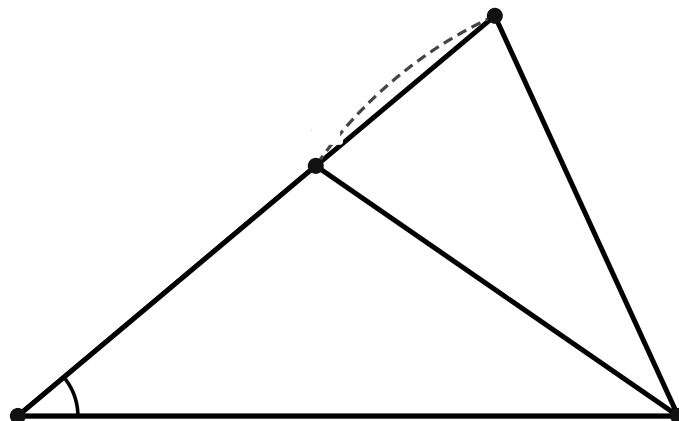
Question 5: How many triangles? (4 points)

- a. $5+6=11>7$: **exactly one**
- b. $8>3+4=7$: **no triangle**
- c. The angles add up to 180° and no side is given: **more than one** (many sizes)
- d. Two sides and the angle between them: **exactly one**

Scoring: 1 point per part.

Question 6: Side-side-angle (2 points)

He is not correct. The given angle is not between the given sides. A 6 cm compass arc centered at C crosses the other ray at two points, so a second triangle exists with AB about 5.3 cm instead of about 8.5 cm.



Two triangles with the same measurements.

Scoring: 1 point for saying he is not correct. 1 point for explaining that two triangles fit (the arc crosses the ray twice).

Question 7: Straws (3 points)

- a. $11 > 4 + 6 = 10$. **No.**
- b. The new length x needs $4 + 6 = 10 > x$ and $x > 6 - 4 = 2$. **Smallest 3 in., largest 9 in.**

Scoring: 1 point for part (a). Part (b): 1 point for each correct length.

Question 8: Construction steps (2 points)

- 1. Draw segment AB, 7 cm long, with the ruler.
- 2. Place the protractor center on A with its 0 line along AB and mark 50° .
- 3. Draw a ray from A through the mark and measure 5 cm along it to place C.
- 4. Join B to C.

Scoring: 1 point for drawing AB and the 50° angle at A in the right order. 1 point for placing C at 5 cm and joining B to C.

Total
20 points