

Grade 7 - Drawing Triangles from Given Conditions - Test

Common Core 7.G.A.2 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This 45-minute test checks drawing triangles from given side lengths and angle measures, the triangle inequality, and when conditions give one triangle, many triangles, or none (Common Core 7.G.A.2). It has 9 questions worth 20 points in all. Show your work, because most questions give partial credit for correct steps.

About this test

- Grade: Grade 7
- Chapter: Drawing Triangles from Given Conditions
- Standards: 7.G.A.2
- Time: 45 minutes
- Total: 20 points

Question 1 - Triangle inequality [2 pts]

Set	Side lengths (in)
A	4, 5, 8
B	3, 4, 8
C	6, 6, 12

Three sets of lengths.

Decide which sets can form a triangle. Show the check for each.

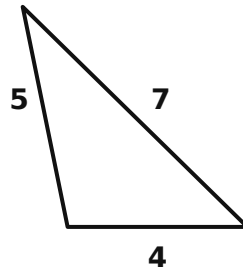
Question 2 - Angle sum [2 pts]

Can angles of 72° , 68° , and 40° form a triangle? If a fourth set has angles 55° and 75° , find its third angle.

Question 3 - How many triangles? [2 pts]

For each description, tell whether it gives exactly one triangle, more than one, or none. (a) Sides 5, 6, 7. (b) Angles 30, 60, 90 only. (c) Sides 3, 3, 9.

Question 4 - Perimeter and range [2 pts]



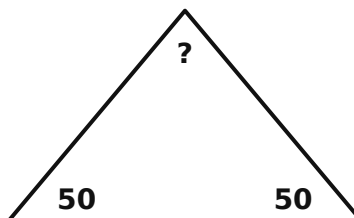
A triangle drawn with a ruler.

Find the perimeter of the triangle. Then find the range of possible lengths for the third side of a different triangle with sides 4 in and 5 in.

Question 5 - Included angle [2 pts]

Describe how to draw a triangle with sides of 5 cm and 7 cm and an angle of 40° between them. Is the triangle unique?

Question 6 - Isosceles angles [2 pts]



An isosceles triangle.

Find the unknown angle, and tell whether the triangle is unique if no sides are given.

Question 7 - Whole-number sides [2 pts]

Two sides of a triangle are 8 in and 11 in. How many whole-number lengths are possible for the third side?

Question 8 - Stick kit [3 pts]

9

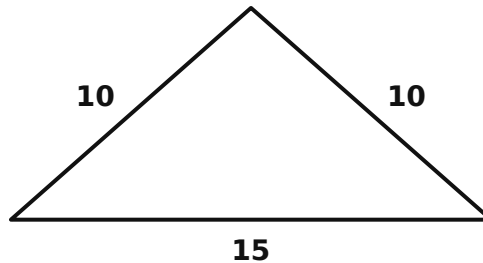
6 4

$6 + 4 = 10$ versus 9: Overlap: a triangle forms

Sticks in Maya's kit.

- Can Maya make a triangle with the sticks 9 in, 4 in, and 6 in? (1 point)
- She replaces the 4-inch stick by a 2-inch stick. Can she now make a triangle? (1 point)
- Find the shortest whole-number stick that works with 9 in and 6 in. (1 point)

Question 9 - Kite frame [3 pts]



A kite frame.

- Check that the sides 10 in, 10 in, and 15 in make a triangle. (1 point)
- Find the perimeter. (1 point)
- The base is changed to 20 in. Can a triangle still be made? Explain. (1 point)