

Grade 7 - Drawing Triangles from Given Conditions - Worksheet

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

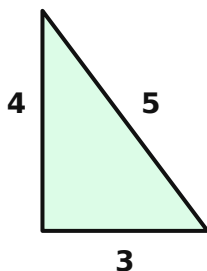
Name: _____ Class: _____ Date: ____/____/____

These 20 problems practice 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). They start with the basic skill, move to different kinds of numbers and multistep work, and end with six word problems set in everyday situations such as shopping, sports, and travel.

Show every step of your work, and use the answer key only after you have tried each problem.

Grade 7 · Common Core State Standards: **7.G.A.2**

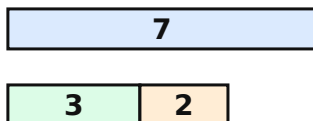
Exercise 1 - Check 3, 4, 5



Triangle with sides 3, 4, 5.

Can sides of length 3 in, 4 in, and 5 in form a triangle?

Exercise 2 - Check 2, 3, 7



3 + 2 = 5 versus 7: Gap: the short sticks fall short

Three sticks.

Can sides of length 2 in, 3 in, and 7 in form a triangle?

Exercise 3 - Exactly equal

Can sides of length 5 cm, 5 cm, and 10 cm form a triangle? Explain.

Exercise 4 - A right triangle?

Sides of 6 ft, 8 ft, and 10 ft form a triangle. Show that they satisfy the triangle inequality in all three ways.

Exercise 5 - Angles that fit

Angles of 50° , 60° , and 70° are given. Can they be the angles of a triangle? Is the triangle unique?

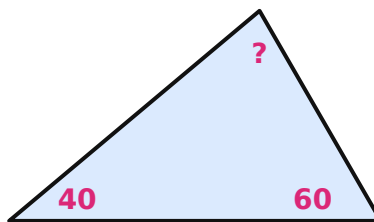
Exercise 6 - Angles that don't fit

Can 90° , 60° , and 40° be the angles of a triangle?

Exercise 7 - How many triangles?

How many different triangles (up to size and position) can be drawn with sides 4 in, 6 in, and 7 in?

Exercise 8 - Third angle



Angles 40, 60 and the unknown angle.

Two angles of a triangle measure 40° and 60° . Find the third angle.

Exercise 9 - Range of the third side

Two sides of a triangle are 5 in and 8 in. Find the possible lengths of the third side.

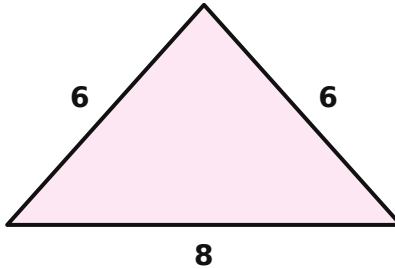
Exercise 10 - Included angle

Draw a triangle with two sides of 4 in and the angle between them equal to 60° . Find the other two angles and the third side.

Exercise 11 - Unique or not?

A triangle has angles 35° and 65° with a 5-inch side between them. Is the triangle unique? Find the third angle.

Exercise 12 - Isosceles perimeter



Equal sides of 6 and base 8.

An isosceles triangle has a base of 8 in and a perimeter of 20 in. Find the length of each equal side, and check that a triangle exists.

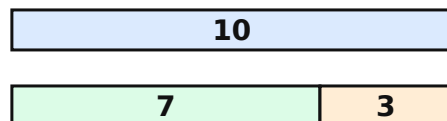
Exercise 13 - Describe the drawing

Describe, in steps, how to draw a triangle with sides 3 in, 4 in, and 5 in using a ruler and a compass.

Exercise 14 - Right isosceles

A triangle has angles 90° , 45° , and 45° . Is it unique if no side is given? What single fact would make it unique?

Exercise 15 - Craft sticks



7 + 3 = 10 versus 10: Just reach: flat, no triangle

Liam's sticks.

Liam has craft sticks of lengths 7 in, 3 in, and 10 in. Can he make a triangle? Explain.

Exercise 16 - Whole-number third side

Sofia has sticks of 6 in and 9 in. How many whole-number lengths could the third stick have so that a triangle forms?

Exercise 17 - Three towns

Three towns are 12 mi, 5 mi, and 8 mi apart. Can the towns be the corners of a triangle? Explain.

Exercise 18 - Roof truss

A roof truss is an isosceles triangle with two base angles of 35° each. Find the top angle.

Exercise 19 - Perimeter 30

A triangle has a perimeter of 30 in and two sides of 9 in and 12 in. Find the third side and check that a triangle exists.

Exercise 20 - Tent base

A tent has two sides of 5 ft. How many whole-number base lengths are possible?