

Solving Any Triangle with Sines, Cosines and Area

Grade 10 – Geometry math · Test · Standards: G-SRT.D.9, G-SRT.D.10, G-SRT.D.11

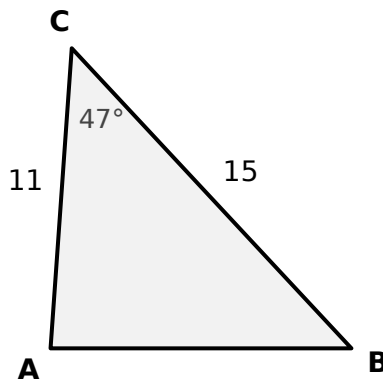
Name: _____ Date: _____ Class: _____

This test has 8 questions worth 20 points and is designed for 45 minutes. A scientific calculator in degree mode is allowed. Show the equation for every side, angle or area.

Standards: G-SRT.D.9, G-SRT.D.10, G-SRT.D.11 · **Level:** Grade 10 Geometry

Time: 45 minutes · 8 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Triangle Area (2 points)



Not drawn to scale.

Calculate the area of this triangle, rounded to one decimal place.

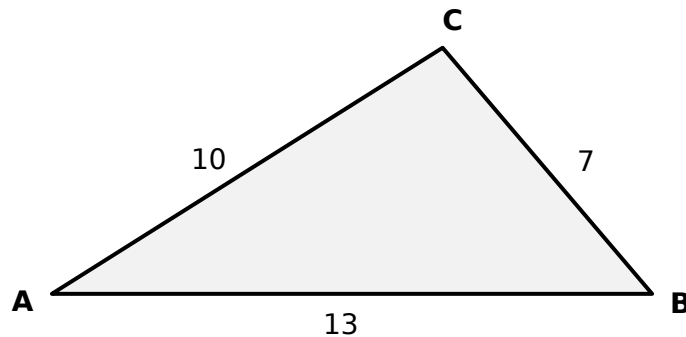
Question 2 Find a Side with Sines (2 points)

In triangle ABC, $A = 81^\circ$, $B = 33^\circ$ and $a = 22$. Find b to the nearest tenth.

Question 3 Find a Side with Cosines (2 points)

In triangle ABC, $a = 19$, $b = 14$ and $C = 48^\circ$. Find c to the nearest tenth.

Question 4 Largest Angle (3 points)



Not drawn to scale.

Find the largest angle of the triangle to the nearest tenth of a degree.

Question 5 Which Law First? (2 points)

State which law to use first, the Law of Sines or the Law of Cosines. (a) $B = 52^\circ$, $C = 61^\circ$, $b = 33$. (1 point) (b) $a = 5$, $b = 8$, $c = 11$. (1 point)

Question 6 Across the Canyon (3 points)

A park ranger at point R measures 310 feet to a boulder B and 275 feet to a tree T across a canyon. The angle BRT is 84° . Find the distance BT to the nearest foot.

Question 7 Two Lookouts (3 points)

Fire lookouts at A and B are 5.4 miles apart. Each spots a fire at F . The angle at A in triangle ABF is 58° and the angle at B is 49° . Find the distance from A to the fire to the nearest tenth of a mile.

Question 8 Hikers at Different Bearings (3 points)

Two hikers leave a campsite. The first walks 9 miles on a bearing of 040° . The second walks 14 miles on a bearing of 115° . How far apart are they to the nearest tenth of a mile?