

Right Triangles and Trigonometry: math practice, Grade 10 – download the PDF

22 problems graded by difficulty (★ easy, ★★ medium, ★★★ hard). Try first, without looking at the solutions!

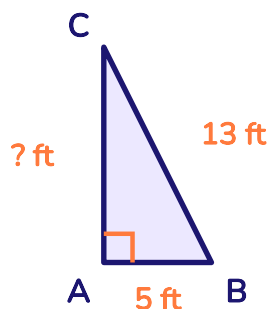
1 Tablet diagonal

★ ★ ★

A tablet screen is 6 in wide and 8 in tall. How long is its diagonal, in inches and in centimeters (1 in = 2.54 cm)?

2 Ladder against a wall

★ ★ ★



A 13 ft ladder leans against a wall with its base 5 ft from the wall. How high up the wall does it reach?

3 Right triangle or not?



Decide whether each set of side lengths forms a right triangle: (a) 9, 40, 41; (b) 10, 24, 26; (c) 12, 16, 22.

4 Square tile



A square floor tile has sides of 8 in. Find the length of its diagonal, exactly and to the nearest hundredth.

5 Half an equilateral triangle



In a 30-60-90 triangle the shortest side is 5 cm. Find the other two sides.

6 Reading the ratios



A right triangle has legs 9 and 12 and hypotenuse 15. For the angle A opposite the leg of length 9, write $\sin A$, $\cos A$ and $\tan A$ as fractions in lowest terms.

7 True or false?



Say whether each statement is true or false and justify: (a) $\sin 20^\circ = \cos 70^\circ$; (b) the hypotenuse of a right triangle can be shorter than one of its legs; (c) $\tan 45^\circ = 1$.

8 Guy wire



A guy wire is attached 24 ft up a pole and anchored in the ground 7 ft from the base of the pole. How long is the wire? Give the answer in feet and in meters (1 ft = 0.3048 m).

9 Is the corner square?



(a) A carpenter measures 15 in, 36 in and 39 in. Is the corner square? (b) A triangle has sides 8, 10 and 13. Classify it as acute, right or obtuse.

10 Geometric means



Find the geometric mean of (a) 6 and 24; (b) 5 and 20; (c) 4 and 10 (exact value, then to the nearest hundredth).

11 Altitude to the hypotenuse



In a right triangle the altitude to the hypotenuse splits it into segments of length 3 and 12. Find the altitude, the hypotenuse and both legs (exact values, then to the nearest hundredth).

12 Flagpole rope



A rope from the top of a flagpole is pegged to level ground 15 ft from the base and makes a 28° angle with the ground. Find the length of the rope and the height of the pole, to the nearest tenth of a foot.

13 Wheelchair ramp



A ramp rises 2 ft over a horizontal distance of 24 ft. Find its angle of inclination to the nearest tenth of a degree.

14 Height of a tree



You stand 50 ft from a tree. Your eyes are 5.5 ft above the ground and the angle of elevation to the top of the tree is 38° . How tall is the tree?

15 Lifeguard tower



A lifeguard sits 12 ft above the water and sees a swimmer at an angle of depression of 15° . Find (a) the horizontal distance to the swimmer and (b) the straight-line distance from the lifeguard to the swimmer.

16 Solving with the Law of Sines



In triangle ABC , $A = 52^\circ$, $B = 71^\circ$ and $a = 14$. Find C , b and c to the nearest tenth.

17 Solving with the Law of Cosines



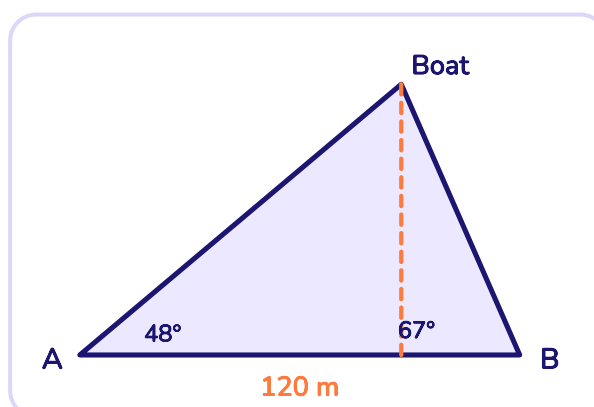
In triangle ABC , $a = 13$, $b = 17$ and $C = 38^\circ$. Find c to the nearest hundredth.

18 Three sides



A triangular garden has sides 9 m, 10 m and 11 m. Find its three angles to the nearest tenth of a degree.

19 Boat from the shore



Two observers, A and B, stand 120 m apart on a straight shore. The angle at A between the shore and a boat is 48° and the angle at B is 67° . Find the distance from A to the boat and the boat's perpendicular distance from the shore.

20 Building and flagpole



From a point 30 m from the foot of a building, the angle of elevation to the top of the building is 55° and to the top of a flagpole standing on the roof is 60° . How tall is the flagpole, to the nearest tenth of a meter?

21 Altitude by areas



A right triangle has legs $a = 9$ and $b = 12$. (a) Find the hypotenuse. (b) Compute the area two ways to show that the altitude to the hypotenuse is $h = \frac{ab}{c}$, and find h . (c) Find the two segments of the hypotenuse and confirm $h^2 = pq$.

22 A ship changes course



A ship sails 40 mi from port, turns, and sails 30 mi more. At the turning point the angle between the two legs of the trip is 125° . How far is the ship from port? Give the answer in miles and in kilometers (1 mi = 1.609 km).



Test yourself: quick challenge for Grade 10

[Change level](#)

Level : **Grade 10**

6 random questions, instant feedback.



Start the challenge



Speed drill for Grade 10: how many in 60 seconds?



Keep exploring with Zyro

 **Practice solutions**

Right Triangles and Trigonometry:
practice solutions, Grade 10

 **Math lessons**

Right Triangles and Trigonometry: math
lesson, Grade 10

 **Math quizzes**

Right Triangles and Trigonometry: math
quiz, Grade 10

 **Practice solutions**

Circles: practice solutions, Grade 10

✓ **Practice solutions**

Area, Surface Area, and Volume: practice solutions, Grade 10

■ **Math lessons**

Circles: math lesson, Grade 10

Zyro vous emmène sur nos sites partenaires

Embarquez pour d'autres planètes du savoir et leurs applis.

Décollage