

Geometry - Right Triangle Trigonometry - Worksheet

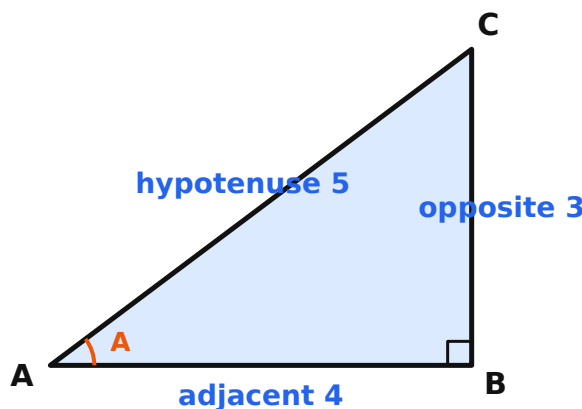
Common Core G-SRT.C.6, G-SRT.C.7, G-SRT.C.8 · maths-pdf.fr/en/

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

These 20 problems practice sine, cosine, tangent, complementary angles and solving right triangles (Common Core G-SRT.C.6 to G-SRT.C.8). The first problems are quick one-step checks of the definitions and formulas from the lesson. The middle problems ask for diagrams, equations and careful reasoning in the style of a high school Geometry class. The last six problems are applications with ladders, trees, ramps and lighthouses.

Geometry · Common Core State Standards: **G-SRT.C.6, G-SRT.C.7, G-SRT.C.8**

Exercise 1 - Name the ratios



Sides are named relative to angle A.

For the triangle with legs 3 and 4 and hypotenuse 5, write $\sin A$, $\cos A$ and $\tan A$ as fractions.

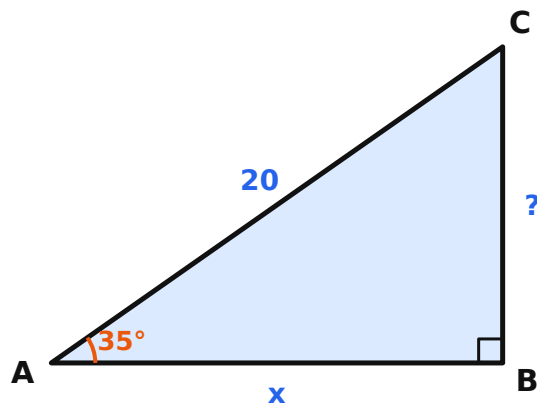
Exercise 2 - Sine of a 5-12-13 triangle

In a right triangle with legs 5 and 12 and hypotenuse 13, find $\sin A$ where A is opposite the leg of length 5.

Exercise 3 - Tangent

A right triangle has legs 8 and 15. Find the hypotenuse and the tangent of the angle opposite the leg of length 8.

Exercise 4 - Find a side with sine



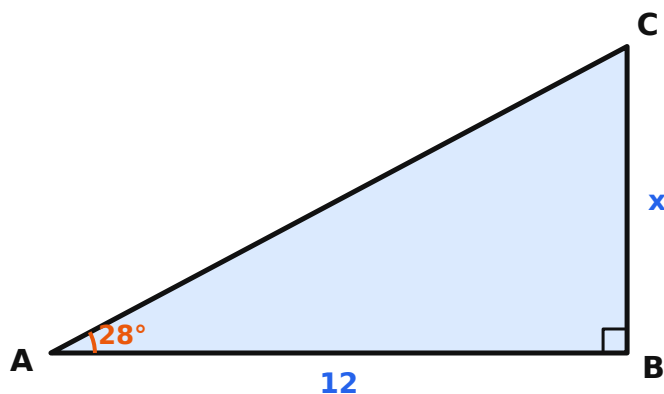
Use a ratio that connects the known side and the unknown side.

In the right triangle the hypotenuse is 20 and angle A is 35° . Find the side opposite A to the nearest tenth.

Exercise 5 - Find a side with cosine

The hypotenuse of a right triangle is 15 and an acute angle is 52° . Find the side adjacent to that angle to the nearest tenth.

Exercise 6 - Find a side with tangent



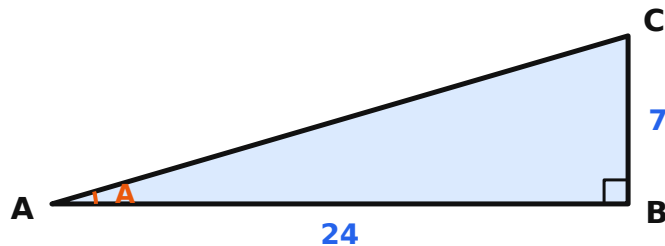
Adjacent side 12.

An acute angle of a right triangle is 28° and the adjacent side is 12. Find the opposite side to the nearest tenth.

Exercise 7 - Find an angle: sine

Find the acute angle A if $\sin A = 0.6$. Round to the nearest tenth of a degree.

Exercise 8 - Find an angle from sides



Legs 7 and 24.

A right triangle has legs 7 and 24. Find the angle opposite the leg of length 7 to the nearest tenth.

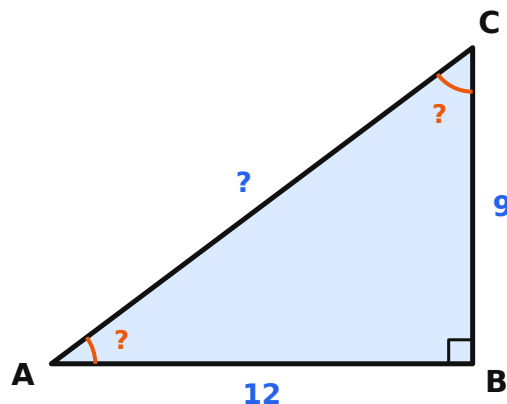
Exercise 9 - Complementary angles

Find the missing angle: $\sin 25^\circ = \cos x^\circ$.

Exercise 10 - Check complementary

Use a calculator to check that $\sin 38^\circ$ and $\cos 52^\circ$ are equal to four decimal places.

Exercise 11 - Solve a right triangle



Legs 9 and 12.

Solve the right triangle with legs 9 and 12: find the hypotenuse and both acute angles to the nearest tenth.

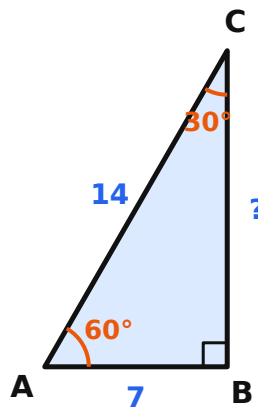
Exercise 12 - Solve from hypotenuse and angle

A right triangle has hypotenuse 25 and an acute angle of 40° . Find the other acute angle and both legs to the nearest tenth.

Exercise 13 - Solve from a leg and angle

A right triangle has a leg of 10 adjacent to a 62° angle. Find the opposite leg and the hypotenuse to the nearest tenth.

Exercise 14 - 30-60-90 triangle



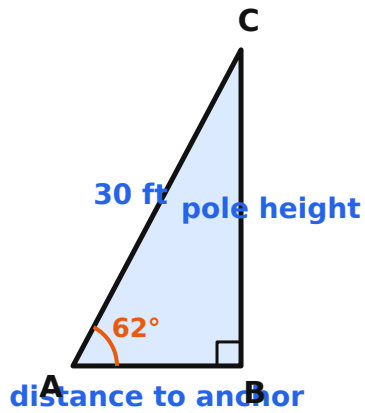
30-60-90 triangle.

A 30-60-90 triangle has hypotenuse 14. Find the legs, using the fact that the side opposite 30° is half the hypotenuse.

Exercise 15 - 45-45-90 triangle

A 45-45-90 triangle has legs of 9. Find the hypotenuse in simplest radical form and as a decimal to the nearest hundredth.

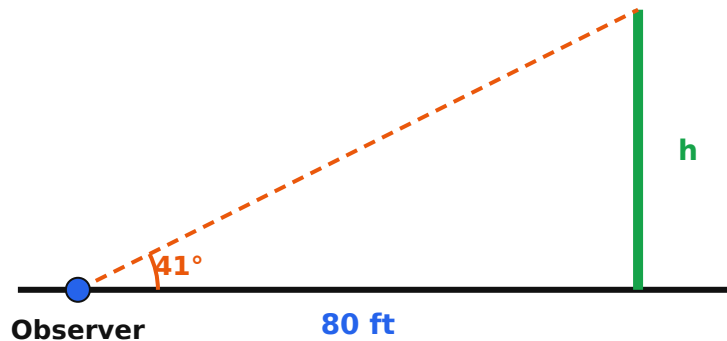
Exercise 16 - Guy wire



A guy wire holding a pole.

A 30-foot guy wire runs from the top of a pole to an anchor in the ground and makes a 62° angle with the ground. How tall is the pole, and how far is the anchor from the base of the pole? Round to the nearest tenth.

Exercise 17 - Height of a windmill



Angle of elevation to the top of a windmill.

Mei stands 80 feet from the base of a windmill. The angle of elevation to the top of the tower is 41° . Find the height of the tower to the nearest tenth. Ignore her eye height.

Exercise 18 - Wheelchair ramp

A ramp rises 2.5 feet over a horizontal run of 30 feet. Find the angle the ramp makes with the ground to the nearest tenth of a degree.

Exercise 19 - Lighthouse

From the top of a lighthouse 80 feet above the water, the angle of depression to a boat is 12° . Find the horizontal distance from the boat to the base of the lighthouse to the nearest foot.

Exercise 20 - Kite string

A kite string is 120 feet long and makes a 54° angle with level ground. Assume the string is straight. Find the kite's height above the ground to the nearest tenth of a foot.