

Day 14 Lesson Solving Right Triangles with Trigonometric Inverses Functions

Lesson 152 | Trigonometry | Right-triangle trigonometry

<https://www.youtube.com/watch?v=rsWyTeoiXdo>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

In a right triangle, acute angle θ has opposite leg 45 and adjacent leg 60. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

02

In a right triangle, acute angle θ has opposite leg 6 and adjacent leg 36. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

03

In a right triangle, acute angle θ has opposite leg 56 and adjacent leg 77. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

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04

In a right triangle, acute angle θ has opposite leg 70 and adjacent leg 35. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

05

In a right triangle, acute angle θ has opposite leg 66 and adjacent leg 42. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

06

In a right triangle, acute angle θ has opposite leg 14 and adjacent leg 22. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

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01

In a right triangle, acute angle θ has opposite leg 45 and adjacent leg 60. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $5\sqrt{225}$. $\sin \theta = 9/\sqrt{225}$; $\cos \theta = 12/\sqrt{225}$; $\tan \theta = 9/12$; $\csc \theta = \sqrt{225}/9$; $\sec \theta = \sqrt{225}/12$; $\cot \theta = 12/9$. $\theta = \arctan(9/12) \approx 36.9^\circ$.

02

In a right triangle, acute angle θ has opposite leg 6 and adjacent leg 36. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $3\sqrt{148}$. $\sin \theta = 2/\sqrt{148}$; $\cos \theta = 12/\sqrt{148}$; $\tan \theta = 2/12$; $\csc \theta = \sqrt{148}/2$; $\sec \theta = \sqrt{148}/12$; $\cot \theta = 12/2$. $\theta = \arctan(2/12) \approx 9.5^\circ$.

03

In a right triangle, acute angle θ has opposite leg 56 and adjacent leg 77. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $7\sqrt{185}$. $\sin \theta = 8/\sqrt{185}$; $\cos \theta = 11/\sqrt{185}$; $\tan \theta = 8/11$; $\csc \theta = \sqrt{185}/8$; $\sec \theta = \sqrt{185}/11$; $\cot \theta = 11/8$. $\theta = \arctan(8/11) \approx 36.0^\circ$.

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04

In a right triangle, acute angle θ has opposite leg 70 and adjacent leg 35. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $5\sqrt{245}$. $\sin \theta = 14/\sqrt{245}$; $\cos \theta = 7/\sqrt{245}$; $\tan \theta = 14/7$; $\csc \theta = \sqrt{245}/14$; $\sec \theta = \sqrt{245}/7$; $\cot \theta = 7/14$. $\theta = \arctan(14/7) \approx 63.4^\circ$.

05

In a right triangle, acute angle θ has opposite leg 66 and adjacent leg 42. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $6\sqrt{170}$. $\sin \theta = 11/\sqrt{170}$; $\cos \theta = 7/\sqrt{170}$; $\tan \theta = 11/7$; $\csc \theta = \sqrt{170}/11$; $\sec \theta = \sqrt{170}/7$; $\cot \theta = 7/11$. $\theta = \arctan(11/7) \approx 57.5^\circ$.

06

In a right triangle, acute angle θ has opposite leg 14 and adjacent leg 22. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $2\sqrt{170}$. $\sin \theta = 7/\sqrt{170}$; $\cos \theta = 11/\sqrt{170}$; $\tan \theta = 7/11$; $\csc \theta = \sqrt{170}/7$; $\sec \theta = \sqrt{170}/11$; $\cot \theta = 11/7$. $\theta = \arctan(7/11) \approx 32.5^\circ$.