

Pre-Calculus 6.2 Solving Right Triangles with SOHCAHTOA and Their Inverses

Lesson 184 | Precalculus | Right-triangle trigonometry

https://www.youtube.com/watch?v=CU39oI5U_WE

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 30. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

02

In a right triangle, acute angle θ has opposite leg 60 and adjacent leg 35. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

03

In a right triangle, acute angle θ has opposite leg 70 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 36 and adjacent leg 33. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

05

In a right triangle, acute angle θ has opposite leg 10 and adjacent leg 28. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

06

In a right triangle, acute angle θ has opposite leg 56 and adjacent leg 16. 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 30. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $5\sqrt{117}$. $\sin \theta = 9/\sqrt{117}$; $\cos \theta = 6/\sqrt{117}$; $\tan \theta = 9/6$; $\csc \theta = \sqrt{117}/9$; $\sec \theta = \sqrt{117}/6$; $\cot \theta = 6/9$. $\theta = \arctan(9/6) \approx 56.3^\circ$.

02

In a right triangle, acute angle θ has opposite leg 60 and adjacent leg 35. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $5\sqrt{193}$. $\sin \theta = 12/\sqrt{193}$; $\cos \theta = 7/\sqrt{193}$; $\tan \theta = 12/7$; $\csc \theta = \sqrt{193}/12$; $\sec \theta = \sqrt{193}/7$; $\cot \theta = 7/12$. $\theta = \arctan(12/7) \approx 59.7^\circ$.

03

In a right triangle, acute angle θ has opposite leg 70 and adjacent leg 77. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $7\sqrt{221}$. $\sin \theta = 10/\sqrt{221}$; $\cos \theta = 11/\sqrt{221}$; $\tan \theta = 10/11$; $\csc \theta = \sqrt{221}/10$; $\sec \theta = \sqrt{221}/11$; $\cot \theta = 11/10$. $\theta = \arctan(10/11) \approx 42.3^\circ$.

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04

In a right triangle, acute angle θ has opposite leg 36 and adjacent leg 33. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $3\sqrt{265}$. $\sin \theta = 12/\sqrt{265}$; $\cos \theta = 11/\sqrt{265}$; $\tan \theta = 12/11$; $\csc \theta = \sqrt{265}/12$; $\sec \theta = \sqrt{265}/11$; $\cot \theta = 11/12$. $\theta = \arctan(12/11) \approx 47.5^\circ$.

05

In a right triangle, acute angle θ has opposite leg 10 and adjacent leg 28. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $2\sqrt{221}$. $\sin \theta = 5/\sqrt{221}$; $\cos \theta = 14/\sqrt{221}$; $\tan \theta = 5/14$; $\csc \theta = \sqrt{221}/5$; $\sec \theta = \sqrt{221}/14$; $\cot \theta = 14/5$. $\theta = \arctan(5/14) \approx 19.7^\circ$.

06

In a right triangle, acute angle θ has opposite leg 56 and adjacent leg 16. Find the hypotenuse, all six trig ratios, and θ to 0.1° .

Hypotenuse = $4\sqrt{212}$. $\sin \theta = 14/\sqrt{212}$; $\cos \theta = 4/\sqrt{212}$; $\tan \theta = 14/4$; $\csc \theta = \sqrt{212}/14$; $\sec \theta = \sqrt{212}/4$; $\cot \theta = 4/14$. $\theta = \arctan(14/4) \approx 74.1^\circ$.