

Day6 Trigonometric Introduction of Unit Circle with the Special Right Triangles

Lesson 143 | Trigonometry | Unit circle and exact values • Right and special right triangles

https://www.youtube.com/watch?v=W7F6wx_xQaU

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Find exact $\sin(1740^\circ)$ and $\cos(1740^\circ)$ using the unit circle. Give the coterminal angle in $[0^\circ, 360^\circ)$.

02

A right triangle has legs 72 and 96. Find its hypotenuse and the altitude to the hypotenuse.

03

Find exact $\sin(-240^\circ)$ and $\cos(-240^\circ)$ using the unit circle. Give the coterminal angle in $[0^\circ, 360^\circ)$.

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04

A 30° - 60° - 90° triangle has shorter leg 56. Find the longer leg and hypotenuse.

05

Find exact $\sin(-870^\circ)$ and $\cos(-870^\circ)$ using the unit circle. Give the coterminal angle in $[0^\circ, 360^\circ)$.

06

A right triangle has legs 99 and 132. Find its hypotenuse and the altitude to the hypotenuse.

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01

Find exact $\sin(1740^\circ)$ and $\cos(1740^\circ)$ using the unit circle. Give the coterminal angle in $[0^\circ, 360^\circ)$.

Coterminal angle 300° . Coordinates $(\cos \theta, \sin \theta) = (1/2, -\sqrt{3}/2)$; the first is cosine and the second is sine.

02

A right triangle has legs 72 and 96. Find its hypotenuse and the altitude to the hypotenuse.

Pythagorean theorem gives hypotenuse 120. Equate areas: $(1/2)(72)(96) = (1/2)(120)h$, so $h = 288/5$.

03

Find exact $\sin(-240^\circ)$ and $\cos(-240^\circ)$ using the unit circle. Give the coterminal angle in $[0^\circ, 360^\circ)$.

Coterminal angle 120° . Coordinates $(\cos \theta, \sin \theta) = (-1/2, \sqrt{3}/2)$; the first is cosine and the second is sine.

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04

A 30° - 60° - 90° triangle has shorter leg 56. Find the longer leg and hypotenuse.

The side ratio is $1:\sqrt{3}:2$. Longer leg $56\sqrt{3}$; hypotenuse 112.

05

Find exact $\sin(-870^\circ)$ and $\cos(-870^\circ)$ using the unit circle. Give the coterminal angle in $[0^\circ, 360^\circ)$.

Coterminal angle 210° . Coordinates $(\cos \theta, \sin \theta) = (-\sqrt{3}/2, -1/2)$; the first is cosine and the second is sine.

06

A right triangle has legs 99 and 132. Find its hypotenuse and the altitude to the hypotenuse.

Pythagorean theorem gives hypotenuse 165. Equate areas: $(1/2)(99)(132) = (1/2)(165)h$, so $h = 396/5$.