Watch. Practice. Understand. | Lesson 222

Section 6 3 Trigonometric Function with Any Angles

Watch the matching video: https://www.youtube.com/watch?v=gWJGEG9OzfE

Practice focus: Unit circle and exact values

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Evaluate $\sin(\pi/6)$, $\cos(\pi/3)$ and $\tan(\pi/4)$.

02 Evaluate $\sin(4\pi/3)$ and $\cos(4\pi/3)$.

03 If $\cos\theta = -3/5$ and θ is in quadrant II, find $\sin\theta$ and $\tan\theta$.

04 Explain why $\sin^2\theta + \cos^2\theta = 1$.

Watch. Practice. Understand. | Lesson 222

Section 6 3 Trigonometric Function with Any Angles

Watch the matching video: https://www.youtube.com/watch?v=gWJGEG9OzfE

Practice focus: Radians, reference and coterminal angles

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

05 Convert 150° to radians.

06 Convert 7π/4 radians to degrees.

07 Find the reference angle for 225°, and one positive coterminal angle greater than 360°.

08 Find the unit-circle coordinates at 5π/6.

Worked answers | Lesson 222

Section 6 3 Trigonometric Function with Any Angles

Watch the matching video: https://www.youtube.com/watch?v=gWJGEG9OzfE

Practice focus: Unit circle and exact values

Original extra practice matched to the listed lesson topic.

01 Evaluate sin(π/6), cos(π/3) and tan(π/4).

Each follows from special triangles: 1/2, 1/2, 1.

02 Evaluate sin(4π/3) and cos(4π/3).

Quadrant III with reference angle π/3: -√3/2 and -1/2.

03 If cos θ = -3/5 and θ is in quadrant II, find sin θ and tan θ.

$\sin^2 \theta = 1 - 9/25 = 16/25$; positive in quadrant II, so sin θ = 4/5 and tan θ = -4/3.

04 Explain why $\sin^2 \theta + \cos^2 \theta = 1$.

On the unit circle (x, y) = (cos θ, sin θ) and $x^2 + y^2 = 1$ by the distance formula.

Worked answers | Lesson 222

Section 6 3 Trigonometric Function with Any Angles

Watch the matching video: https://www.youtube.com/watch?v=gWJGEG9OzfE

Practice focus: Radians, reference and coterminal angles

Original extra practice matched to the listed lesson topic.

05 Convert 150° to radians.

150π/180 = 5π/6.

06 Convert 7π/4 radians to degrees.

(7π/4)(180/π) = 315°.

07 Find the reference angle for 225°, and one positive coterminal angle greater than 360°.

Reference angle = 225 - 180 = 45°. A coterminal angle is 225 + 360 = 585°.

08 Find the unit-circle coordinates at 5π/6.

Reference angle π/6 in quadrant II: (cos θ, sin θ) = (-√3/2, 1/2).