

Watch. Practice. Understand. | Lesson 271

Calculus Section 3.5 Derivatives of Inverse Trigonometric Functions

Watch the matching video: https://www.youtube.com/watch?v=26v_VeQdIV8

Practice focus: Inverse trigonometric derivatives

Original extra practice matched to the listed lesson topic.

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

01 Differentiate $y = \arcsin x$.

02 Differentiate $y = \arctan(2x)$.

03 Differentiate $y = \arccos(x^2)$.

04 Find the tangent slope of $y = \arctan x$ at $x = 1$.

Worked answers | Lesson 271

Calculus Section 3.5 Derivatives of Inverse Trigonometric Functions

Watch the matching video: https://www.youtube.com/watch?v=26v_VeQdlV8

Practice focus: Inverse trigonometric derivatives

Original extra practice matched to the listed lesson topic.

01 Differentiate $y = \arcsin x$.

$$y' = 1/\sqrt{1-x^2}, \text{ for } -1 < x < 1.$$

02 Differentiate $y = \arctan(2x)$.

$$\text{Chain rule: } y' = 2/(1+4x^2).$$

03 Differentiate $y = \arccos(x^2)$.

$$y' = -2x/\sqrt{1-x^4}, \text{ for } |x| < 1.$$

04 Find the tangent slope of $y = \arctan x$ at $x = 1$.

$$1/(1+1^2) = 1/2.$$