

Watch. Practice. Understand. | Lesson 285

Calculus 3 4 Chain Rule with Composition Functions

Watch the matching video: <https://www.youtube.com/watch?v=P2CPwC9CKHM>

Practice focus: Chain rule

Original extra practice matched to the listed lesson topic.

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

01 Differentiate $y=(3x^2+1)^4$.

02 Differentiate $y=\sin(5x)$.

03 Differentiate $y=e^{(x^2)}$.

04 Differentiate $y=\sqrt{1+x^2}$.

Worked answers | Lesson 285

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Practice focus: Chain rule

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01 Differentiate $y=(3x^2+1)^4$.

Outer derivative times inner: $y'=4(3x^2+1)^3(6x)=24x(3x^2+1)^3$.

02 Differentiate $y=\sin(5x)$.

$y'=5\cos(5x)$.

03 Differentiate $y=e^{(x^2)}$.

$y'=2xe^{(x^2)}$.

04 Differentiate $y=\sqrt{1+x^2}$.

$y'=(1/2)(1+x^2)^{-1/2}(2x)=x/\sqrt{1+x^2}$.