

## **§2.5: THE CHAIN RULE I**

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Dr. Mike Janssen  
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# ANNOUNCEMENTS

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# FUNDAMENTAL ALGEBRAIC STRUCTURE: PREVIEW ACTIVITY DISCUSSION

## THE CHAIN RULE

If  $g$  is differentiable at  $a$  and  $f$  is differentiable at  $g(a)$ , then the composite function  $C$  defined by  $C(x) = f(g(x))$  is differentiable at  $a$ , and

$$C'(a) = f'(g(a)) \cdot g'(a)$$

## EXAMPLE

Let's calculate the derivative of  $f(x) = (x^2 + 4x)^{17}$ .

## ACTIVITY 2.5.2

## EXAMPLE

Let's calculate the derivative of

$$f(x) = e^{3x}(\cos(2x) - x^3).$$

## ACTIVITY 2.5.3



## ACTIVITY 2.5.4

**More practice next time!**