

## Calculus 2 8 The Derivative As A Function

Lesson 268 | Calculus AB | Derivative from the limit definition

[https://www.youtube.com/watch?v=aVwK\\_Nk9S\\_s](https://www.youtube.com/watch?v=aVwK_Nk9S_s)

Original practice aligned to the saved video title.

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Show your reasoning.

**01**

Use the limit definition to differentiate  $f(x)=8x^2+6x$ .

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**02**

Use the limit definition to differentiate  $f(x)=7x^2+5x$ .

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**03**

Use the limit definition to differentiate  $f(x)=11x^2+12x$ .

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04

Use the limit definition to differentiate  $f(x)=2x^2+9x$ .

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05

Use the limit definition to differentiate  $f(x)=11x^2+8x$ .

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06

Use the limit definition to differentiate  $f(x)=8x^2+3x$ .

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**01**

Use the limit definition to differentiate  $f(x)=8x^2+6x$ .

$[f(x+h)-f(x)]/h=16x+8h+6$  for  $h \neq 0$ . Let  $h \rightarrow 0$ :  $f'(x)=16x+6$ .

**02**

Use the limit definition to differentiate  $f(x)=7x^2+5x$ .

$[f(x+h)-f(x)]/h=14x+7h+5$  for  $h \neq 0$ . Let  $h \rightarrow 0$ :  $f'(x)=14x+5$ .

**03**

Use the limit definition to differentiate  $f(x)=11x^2+12x$ .

$[f(x+h)-f(x)]/h=22x+11h+12$  for  $h \neq 0$ . Let  $h \rightarrow 0$ :  $f'(x)=22x+12$ .

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04

Use the limit definition to differentiate  $f(x)=2x^2+9x$ .

$[f(x+h)-f(x)]/h=4x+2h+9$  for  $h \neq 0$ . Let  $h \rightarrow 0$ :  $f'(x)=4x+9$ .

05

Use the limit definition to differentiate  $f(x)=11x^2+8x$ .

$[f(x+h)-f(x)]/h=22x+11h+8$  for  $h \neq 0$ . Let  $h \rightarrow 0$ :  $f'(x)=22x+8$ .

06

Use the limit definition to differentiate  $f(x)=8x^2+3x$ .

$[f(x+h)-f(x)]/h=16x+8h+3$  for  $h \neq 0$ . Let  $h \rightarrow 0$ :  $f'(x)=16x+3$ .