

## The Secret Technique of Using Linear Approximation. Calculus Section 3 10 Linear Appro...

Lesson 279 | Calculus AB | Linear approximation

<https://www.youtube.com/watch?v=TNxJMdzw3AQ>

Original practice aligned to the saved video title.

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

01

Use linearization at  $x=49$  to estimate  $\sqrt{(49+6/100)}$ .

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02

Use linearization at  $x=121$  to estimate  $\sqrt{(121+4/100)}$ .

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03

Use linearization at  $x=49$  to estimate  $\sqrt{(49+2/100)}$ .

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

04

Use linearization at  $x=144$  to estimate  $\sqrt{(144+6/100)}$ .

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05

Use linearization at  $x=100$  to estimate  $\sqrt{(100+4/100)}$ .

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06

Use linearization at  $x=16$  to estimate  $\sqrt{(16+3/100)}$ .

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**01**

Use linearization at  $x=49$  to estimate  $\sqrt{49+6/100}$ .

$f(49)=7$ ;  $f'(49)=1/14$ .  $L(x)=7+(x-49)/14$ . Estimate  $7+6/1400=7.004286$ .

**02**

Use linearization at  $x=121$  to estimate  $\sqrt{121+4/100}$ .

$f(121)=11$ ;  $f'(121)=1/22$ .  $L(x)=11+(x-121)/22$ . Estimate  $11+4/2200=11.001818$ .

**03**

Use linearization at  $x=49$  to estimate  $\sqrt{49+2/100}$ .

$f(49)=7$ ;  $f'(49)=1/14$ .  $L(x)=7+(x-49)/14$ . Estimate  $7+2/1400=7.001429$ .

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04

Use linearization at  $x=144$  to estimate  $\sqrt{(144+6/100)}$ .

$f(144)=12$ ;  $f'(144)=1/24$ .  $L(x)=12+(x-144)/24$ . Estimate  $12+6/2400=12.002500$ .

05

Use linearization at  $x=100$  to estimate  $\sqrt{(100+4/100)}$ .

$f(100)=10$ ;  $f'(100)=1/20$ .  $L(x)=10+(x-100)/20$ . Estimate  $10+4/2000=10.002000$ .

06

Use linearization at  $x=16$  to estimate  $\sqrt{(16+3/100)}$ .

$f(16)=4$ ;  $f'(16)=1/8$ .  $L(x)=4+(x-16)/8$ . Estimate  $4+3/800=4.003750$ .