

Intermediate Vaule Theorem, Rolle's Theorem and Mean Value Theorem Quick Tutorial

Lesson 272 | Calculus AB | IVT, Rolle's theorem and MVT

<https://www.youtube.com/watch?v=1YrIX01kwyQ>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Apply the Mean Value Theorem to $f(x)=x^2+12x$ on $[5,7]$. Verify hypotheses and find every c in the interval.

02

Apply the Mean Value Theorem to $f(x)=x^2+7x$ on $[8,13]$. Verify hypotheses and find every c in the interval.

03

Apply the Mean Value Theorem to $f(x)=x^2+4x$ on $[9,14]$. Verify hypotheses and find every c in the interval.

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04

Apply the Mean Value Theorem to $f(x)=x^2+2x$ on $[12,17]$. Verify hypotheses and find every c in the interval.

05

Apply the Mean Value Theorem to $f(x)=x^2+9x$ on $[3,8]$. Verify hypotheses and find every c in the interval.

06

Apply the Mean Value Theorem to $f(x)=x^2+12x$ on $[5,10]$. Verify hypotheses and find every c in the interval.

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- 01** Apply the Mean Value Theorem to $f(x)=x^2+12x$ on $[5,7]$. Verify hypotheses and find every c in the interval.

Polynomial: continuous on the closed interval and differentiable inside. Secant slope 24. Set $f'(c)=2c+12=24$; $c=6$, strictly between endpoints.

- 02** Apply the Mean Value Theorem to $f(x)=x^2+7x$ on $[8,13]$. Verify hypotheses and find every c in the interval.

Polynomial: continuous on the closed interval and differentiable inside. Secant slope 28. Set $f'(c)=2c+7=28$; $c=21/2$, strictly between endpoints.

- 03** Apply the Mean Value Theorem to $f(x)=x^2+4x$ on $[9,14]$. Verify hypotheses and find every c in the interval.

Polynomial: continuous on the closed interval and differentiable inside. Secant slope 27. Set $f'(c)=2c+4=27$; $c=23/2$, strictly between endpoints.

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04

Apply the Mean Value Theorem to $f(x)=x^2+2x$ on $[12,17]$. Verify hypotheses and find every c in the interval.

Polynomial: continuous on the closed interval and differentiable inside. Secant slope 31. Set $f'(c)=2c+2=31$; $c=29/2$, strictly between endpoints.

05

Apply the Mean Value Theorem to $f(x)=x^2+9x$ on $[3,8]$. Verify hypotheses and find every c in the interval.

Polynomial: continuous on the closed interval and differentiable inside. Secant slope 20. Set $f'(c)=2c+9=20$; $c=11/2$, strictly between endpoints.

06

Apply the Mean Value Theorem to $f(x)=x^2+12x$ on $[5,10]$. Verify hypotheses and find every c in the interval.

Polynomial: continuous on the closed interval and differentiable inside. Secant slope 27. Set $f'(c)=2c+12=27$; $c=15/2$, strictly between endpoints.