

§3.3: GLOBAL OPTIMIZATION

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ANNOUNCEMENTS

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ACTIVITIES 3.2.2-3.2.3

PREVIEW ACTIVITY DISCUSSION

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Upshot: When limiting ourselves to a finite-length interval, we consider the function's behavior at the endpoints. We also often use the phrase **absolute extrema** instead of **global extrema**.

ACTIVITY 3.3.2

EXTREME VALUE THEOREM

Theorem

If f is continuous on a closed interval $[a, b]$ then f attains both an absolute maximum and absolute minimum on $[a, b]$.

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Big Huge Important Fact: The only places these extreme points can occur are the critical numbers or the endpoints a and b .

ACTIVITY 3.3.3

ACTIVITY 3.3.4: TOWARD APPLICATIONS

Math is fun and cool and all that, but we can also use math to solve problems from other disciplines! Huh. Who knew?

Anyway: if a function represents a (possibly) changing quantity, we can use calculus to optimize! That is, we can find maxima and minima.

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Anyway: if a function represents a (possibly) changing quantity, we can use calculus to optimize! That is, we can find maxima and minima.

Now work on [Activity 3.3.4](#).