Determine the intervals of concavity and inflection points for

$$f(x) = x^4 - 2x^3 + x - 2$$

$f'(x) = 4x^3 - 6x^2 + 1$

$f''(x) = 12x^2 - 12x$

$0 = 12x(x-1)$

$x = 0 \; ; \; x = 1$

	$12x$	$(x-1)$	$f''x$	
$(-\infty, 0)$	$-$	$-$	$+$	CU
$(0, 1)$	$+$	$-$	$-$	CD $\Rightarrow$ POI
$(1, \infty)$	$+$	$+$	$+$	CU $\Rightarrow$ POI

Points of Inflection are $(0, -2)$ & $(1, -2)$

Jan 9-1:43 PM

Calculus 120
Unit 4: Applications of Differentiation

May 1, 2019: Day #7

1. Quiz on Monday

2. Assignment Due Tomorrow

Jan 9-1:43 PM

Curriculum Outcomes

C8: Use Calculus techniques to sketch the graph of a function.

C9: Use Calculus techniques to solve optimization problems

C11: Use Calculus techniques to solve problems involving related rates.

Jan 24-9:32 AM

The Second Derivative Test for Max/Min Values

If $f'(c) = 0$ and $f''(c) > 0$, then f has a local minimum at c.

If $f'(c) = 0$ and $f''(c) < 0$, then f has a local maximum at c.

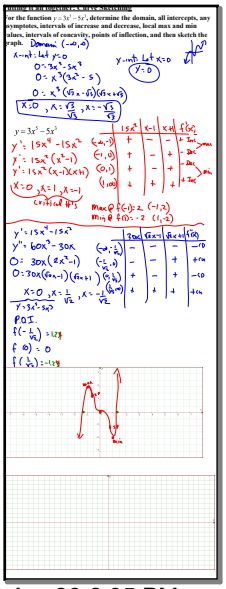
Apr 19-11:22 AM

Use the second derivative test to determine the local maximum and minimum values of $f(x) = x^3 - 12x + 5$.

Apr 26-2:29 PM

Use the second derivative test to determine the local maximum and minimum values of $f(x) = x^4 - 8x^3$.

Apr 26-2:32 PM

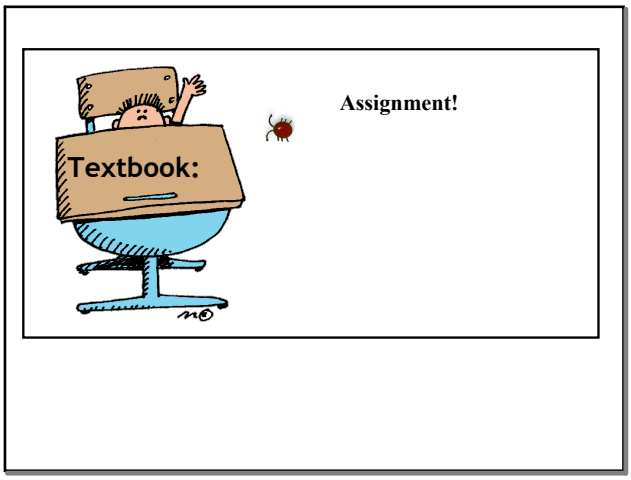


Apr 26-2:35 PM

For the function $f(x)=\frac{x^2}{1-x^2}$, determine the domain, all intercepts, any asymptotes, intervals of increase and decrease, local max and min values, intervals of concavity, points of inflection, and then sketch the graph.

$$f'(x)=\frac{2x}{\left(1-x^2\right)^2} \qquad f''(x)=\frac{2+6x^2}{\left(1-x^2\right)^3}$$

Apr 26-2:51 PM



Jan 13-9:38 PM

Apr 26-3:37 PM

Attachments

2.1_74_AP.html

2.1_74_AP.swf

2.1_74_AP.html