MATH 141 HW 10 (6458515)

Due: Fri Oct 17 2014 11:59 PM EDT

Question

1234567891011121314151617181920212223242526272829303132333435

Question Details

SCalcET6 4.1.029. [703671]

Find the critical number of the function.

$$f(x) = 5x^2 + 8x$$

Ouestion Details 2.

SCalcET6 4.1.031.MI. [1387549]

Find the critical numbers of the function.

$$f(x) = x^3 + 6x^2 - 15x$$

$$x =$$
 [smaller value)

$$x =$$
 (larger value)

3. Question Details SCalcET6 4.1.035.MI. [1387732]

Find the critical numbers of the function.

$$g(y) = \frac{y - 3}{y^2 - 3y + 9}$$

$$y = \boxed{\boxed{\boxed{\boxed{0}} \text{ (smaller value)}}}$$

4. Question Details SCalcET6 4.1.036. [1290795]

Find the critical numbers of the function.

$$h(p) = \frac{p-3}{p^2 + 8}$$



p =

Flash Player version 10 or higher is required for this question.

(smaller value)

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p =

Flash Player version 10 or higher is required for this question.

(larger value)

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SCalcET6 4.1.037.MI. [1387546]

Find the critical numbers of the function.

$$h(t) = t^{3/4} - 5t^{1/4}$$

$$t = \frac{25/9}{25/9}$$
 (larger value)

6. Question Details SCalcET6 4.1.038. [703901]

Find the critical points of the function.

$$g(x) = \sqrt{81 - x^2}$$

7. Question Details SCalcET6 4.1.039. [803564]

Find the critical numbers of the function. (Enter your answers as fractions.)

$$F(x) = x^{4/5}(x - 5)^2$$

$$x = \boxed{\boxed{\boxed{0}} 0 \text{ (smallest value)}}$$

$$x = \frac{100}{100}$$

$$x = \frac{107}{2}$$

 $x = \frac{107}{2}$
 $x = \frac{107}{2}$
(largest value)

8. Question Details

SCalcET6 4.1.040. [803563]

Find the critical number of the function.

$$a(x) = x^{1/7} - x^{-6/7}$$

9. Question Details SCalcET6 4.1.043. [1291753]

Find the critical numbers of the function.

$$f(x) = x^4 e^{-7x}$$



x =

x =

Flash Player version 10 or higher is required for this question.

(smaller value)

(larger value)

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SCalcET6 4.1.044. [1291505]

Find the critical numbers of the function.

$$f(x) = x^{-6} \ln(x)$$



x =

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11. Question Details

SCalcET6 4.1.047. [803583]

Find the absolute maximum and absolute minimum values of f on the given interval.

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

[0, 7]



12. Question Details

SCalcET6 4.1.049.MI. [1387866]

Find the absolute maximum and absolute minimum values of f on the given interval.

$$f(x) = 2x^3 - 3x^2 - 72x + 5$$

[-4, 5]



13. Question Details

SCalcET6 4.1.050. [803566]

Find the absolute maximum and absolute minimum values of f on the given interval.

$$f(x) = x^3 - 6x^2 + 9x + 3$$

[-1, 7]



14. Question Details

SCalcET6 4.1.051. [803574]

Find the absolute minimum and absolute maximum values of f on the interval below.

$$f(x) = x^4 - 2x^2 + 5$$

[-2, 3]



SCalcET6 4.1.052. [803559]

Find the absolute maximum and absolute minimum values of f on the given interval.

$$f(x) = (x^2 - 1)^3$$

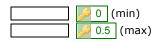


16. Question Details SCalcET6 4.1.053. [803551]

Find the absolute maximum and absolute minimum values of f on the given interval.

$$f\left(x\right) = \frac{x}{x^2 + 1}$$

[0, <mark>2</mark>]



17. Question Details SCalcET6 4.1.054.MI. [1728717]

Find the absolute maximum and absolute minimum values of f on the given interval.

$$f(x) = \frac{x^2 - 4}{x^2 + 4}$$

[-4, 4]



18. Question Details SCalcET6 4.1.057.MI. [1387442]

Find the absolute maximum and absolute minimum values of f on the given interval. (Round all answers to two decimal places.)

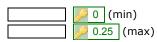
$$f(t) = 2\cos t + \sin 2t$$

$$[0, \frac{n}{2}]$$

19. Question Details SCalcET6 4.1.062. [803584]

Find the absolute maximum and absolute minimum values of f on the given interval.

$$f(x) = e^{-x} - e^{-2x}$$



20. Question Details SCalcET6 4.3.009.MI. [1386987] Consider the equation below. (If you need to use $-\infty$ or ∞ , enter -INFINITY or INFINITY.) $f(x) = 2x^3 + 3x^2 - 180x$ (a) Find the intervals on which f is increasing. (Enter the interval that contains smaller numbers first.) -INFINITY , <u></u> 6)∪(*≫* 5 , Find the interval on which f is decreasing. <u></u> -6 , \bigcirc 5) (b) Find the local minimum and maximum values of f. -575 (min) 756 (max) (c) Find the inflection point. 90.5) Find the interval on which f is concave up. -0.5 , INFINITY) Find the interval on which f is concave down.

21. Question Details SCalcET6 4.3.010. [703799] Consider the equation below. (If you need to use $-\infty$ or ∞ , enter -INFINITY or INFINITY.) $f(x) = 4x^3 + 18x^2 - 216x + 4$ (a) Find the intervals on which f is increasing. (Enter the interval that contains smaller numbers first.) Find the interval on which f is decreasing. (b) Find the local minimum and maximum values of f. 1084 (max) -374 (min) (c) Find the inflection point. *>* -1.5 , 355) Find the interval on which f is concave up. INFINITY) *,* 1.5 , Find the interval on which f is concave down. -INFINITY , *[* -1.5]

SCalcET6 4.3.011. [808127]

Consider the equation below. (Round the answers to two decimal places. If you need to use $-\infty$ or ∞ , enter -INFINITY or INFINITY.)

$$f(x) = x^4 - 50x^2 + 9$$

(a) Find the intervals on which f is increasing. (Enter the interval that contains smaller numbers first.)

(<pre></pre>	<u>></u> 5 ,	INFINITY)
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Find the intervals on which f is decreasing. (Enter the interval that contains smaller numbers first.)

(])∪(
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(b) Find the local minimum and maximum values of f.

P	-6	16	(min)
P	9	(max)	

(c) Find the inflection points.

(<i>></i> -2.89	,	<i>-</i> 338.22) (smaller x value)
(<i>></i> 2.89	,	<i>></i> -338.22) (larger x value)

Find the intervals on which f is concave up. (Enter the interval that contains smaller numbers first.)

(Participation of the second	,	🤌 -2.89) ∪ (<i>></i> 2.89 ,	INFINITY)
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Find the interval on which f is concave down.

(P	-2.89 ,		P	2.89)
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23. Question Details

SCalcET6 4.3.012. [808124]

You are given the following.

$$f\left(x\right) = \frac{x^2}{x^2 + 3}$$

(a) On what interval(s) is f increasing? (Select all that apply.)

- (-∞, -1)
- (-∞, 0)
- (-∞, 1)
- (-1, 1)
- (-1, ∞)
- □ [(0, ∞)
- (-3, ∞)
- none of these

On what interval(s) is f decreasing? (Select all that apply.)

□ (-∞, ∞)
□
□ (-∞, 1)
□ (-1, 3)
□ (-1, 1)
□ (0, 1)
□ (-1, ∞)
□ (0, ∞)
□ (1, ∞)
none of these
(b) What are the local maximum value(s) of f? (Select all that apply.)
□ -1
□ 0
□ 1/4
□ 1/2
□ 1
none of these
What are the local minimum value(s) of f? (Select all that apply.)
□ -1
□
□ 1/4
□ 1/2
□ 1
none of these

(c) On what interval(s) is f concave upward? (Select all that apply.)

- (-∞, 0)
- (-∞, 2)
- (-∞, -1)
- (-1, 1)
- (-1, 2)
- **(0, ∞)**
- (-1, ∞)
- (2, ∞)
- none of these

On what interval(s) is f concave downward? (Select all that apply.)

- **(-∞, 0)**
- (-∞, 2)
- □ [-∞, -1]
- (-1, 2)
- **(0, ∞)**
- □ (-1, ∞)
- none of these

What are the x-coordinate(s) of the inflection point(s) of f? (Select all that apply.)

- -2
- -1
- □ 0
- Ø
 Ø
 Ø
- 2
- none of these

24. Question Details SCalcET6 4.3.019. [808122]

Find the local maximum and minimum values of f using both the First and Second Derivative Tests.

$$f(x) = x^5 - 5x + 4$$



8 (max)

SCalcET6 4.3.020. [703855]

Find the local maximum and minimum values of f using both the First and Second Derivative Tests.

$$f\left(x\right) = \frac{x}{x^2 + 25}$$

$$y =$$
 0.1 (max)

26. Question Details

SCalcET6 4.3.021. [703689]

Find the local maximum value of *f* using both the First and Second Derivative Tests.

$$f(x) = x + \sqrt{9 - x}$$

$$y =$$
 9.25

27. Question Details

SCalcET6 4.3.022. [808119]

Find the critical numbers of the function and describe the behavior of f at these numbers. (List your answers in increasing order.)

$$f(x) = x^6(x - 4)^5$$

At	0 the function hasSelect	‡	🔑 a	local maximum .
At	2.18 the function hasSelect	‡	9	a local minimum
At	4 the function hasSelect	+	🔑 n	ot a max or a min

28. Question Details

SCalcET6 4.3.023.MI. [1387334]

Suppose f " is continuous on $(-\infty, \infty)$.

(a) If
$$f'(-1) = 0$$
 and $f''(-1) = -1$, what can you say about f ?

- \bigcirc At x = -1, f has local maximum.
- \bigcirc At x = -1, f has a local minimum.
- \bigcirc At x = -1, f has not a maximum or minimum.
- There is not enough information.

(b) If
$$f'(4) = 0$$
 and $f''(4) = 0$, what can you say about f ?

- \bigcirc At x = 4, f has local maximum.
- \bigcirc At x = 4, f has a local minimum.
- \bigcirc At x = 4, f has not a maximum or minimum.
- There is not enough information.

29. Question Details

SCalcET6 4.3.034. [803601]

Consider the following.

$$f(x) = 5 + 3x - x^3$$

(a) Find the interval(s) of increase. (Select all that apply.)

(-∞, -1)
□ (-∞, 0)
□ (-2, 0)
□ (0, 2)
□ (-1, 1)
□ (1, ∞)
□ (0, ∞)
\square $(-\infty, \infty)$
none of these
Find the interval(s) of decrease (Select all that apply.)
□ [→] (-∞, -1)
□ (-∞, 0)
□ (-1, 0)
□ (0, 1)
□ (-1, 1)
□ [] (1, ∞)
□ (0, ∞)
\square $(-\infty, \infty)$
none of these
(b) Find the local maximum value(s). (Select all that apply.)
<u> </u>
□ 3
□ 6
<u>4</u>
□
\bigcap ∞

Find the local minimum value(s). (Select all that apply.)

none of these

☐ -1
□
□ 6
□ 4
□ 7
□ ∞
□ none of these
(c) On what interval(s) is f concave upward? (Select all that apply.)
□
□ (0, 2)
□ (0, 1)
□ (-1, 1)
□ (1, ∞)
□ (0, ∞)
\square $(-\infty, \infty)$
none of these
On what interval(s) is f concave downward? (Select all that apply.)
□ (-∞, -1)
□ (-∞, 0)
□ (-1, 0)
□ (-2, 1)
□ (-1, 1)
\square \bigcirc \bigcirc \bigcirc \bigcirc
□ (-∞, ∞)
none of these
What are the inflection point(s) of f ? (Select all that apply.)
(-1, 0)
(0, 5)
(1, 4)
(2, 0)
none of these

(d) Use this information to sketch the graph. Check your work with a graphing device if you have one. (Do this on paper. Your teacher may ask you to turn in this work.)

30.	Question	Detail

SCalcET6 4.3.035. [803604]

Consider the function below. (Round the answers to three decimal places. If you need to use $-\infty$ or ∞ , enter -INFINITY or INFINITY.)

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

(a) Find the intervals of increase. (Enter the interval that contains smaller numbers first.)

(<u>></u> -1.414)) U (<u></u> 0 , □	<u>></u> 1.414
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Find the intervals of decrease. (Enter the interval that contains smaller numbers first.)

[,,	∅ 0) U (<i>></i> 1.414 ,	INFINITY
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(b) Find the local minimum value.

Find the local maximum values.

٩,	5	(smaller x value)
P	5	(larger x value)

(c) Find the inflection points.

(<i>,</i> -0.816 ,	,	<i>>></i> 3.222) (smaller x value)
(<i>></i> 0.816 ,		<i>></i> 3.222) (larger x value)

Find the interval the function is concave up.

(-0.816	,		P	0.816)
---	--	--------	---	--	---	-------	---

Find the intervals the function is concave down. (Enter the interval that contains smaller numbers first.)

	40 (2	tilde collegillo cillanoi ila	
(,,,		<u></u> 0.816 ,	INFINITY)

(d) Use this information to sketch the graph of the function. (Do this on paper. Your instructor may ask you to turn in this graph.)

31. Question Details

SCalcET6 4.3.036.MI. [1386494]

You are given the following function.

$$q(x) = 250 + 8x^3 + x^4$$

(a) Find the interval(s) of increase. (Select all that apply.)

- (-∞, -4)
- $(-\infty, \infty)$
- (-8, 0)
- □ [(-6, ∞)
- (-∞, -6)

Find the interval(s) of decrease. (Select all that apply.)

□ (-6, 6)
□ (-4, 0)
□ (0, ∞)
□ [] (-∞, -6)
□ (-6, ∞)
□ (-∞, -4)
(b) Find the local maximum value(s). (Select all that apply.)
□ -6
□ 0
☐ -182
200
none of these
Find the local minimum value(s). (Select all that apply.)
_ O
□ -6
none of these
200
□
(c) Find the interval(s) where the graph is concave upward. (Select all that apply.) — (-4, 0)
□ (-4, 0) □ [>] (0, ∞)
(-6, 0)
□ (-∞, 6)
(-0, -4)
Find the interval(s) where the graph is concave downward. (Select all that apply.)
□ (-∞, 6)
□ (0, ∞)
□ (-∞, -4)
□ (-6, 0)
□ (-4, 0)

Find the inflection points.

(<u>></u> -4 ,	Smaller x value)
(250) (larger x value)

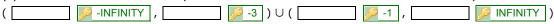
(d) Use this information to sketch the graph. (Do this on paper. Your teacher may ask you to turn in this work.) Check your work with a graphing device if you have one.

32. Question Details SCalcET6 4.3.037. [803617]

Consider the function below. (If you need to use $-\infty$ or ∞ , enter -INFINITY or INFINITY.)

$$h(x) = (x + 2)^5 - 5x - 3$$

(a) Find the intervals of increase. (Enter the interval that contains smaller numbers first.)



Find the interval of decrease.

(b) Find the local minimum value.

Find the local maximum value.



(c) Find the inflection point.



Find the interval the function is concave up.



Find the interval the function is concave down.

(d) Use this information to sketch the graph of the function. (Do this on paper. Your instructor may ask you to turn in this graph.)

33. Question Details SCalcET6 4.3.045.MI. [1386581]

Consider the function below. (If you need to use $-\infty$ or ∞ , enter -INFINITY or INFINITY.)

$$f\left(x\right) = \frac{x^2}{x^2 - 16}$$

(a) Find the vertical and horizontal asymptotes.

y = 1

(b) Find the intervals where the function is increasing. (Enter the interval that contains smaller numbers first.)

Find the intervals where the function is decreasing. (Enter the interval that contains smaller numbers first.)

(c) Find the local maximum value.

<u>></u> 0

(d) Find the intervals where the function is concave up. (Enter the interval that contains smaller numbers first.)

Find the interval where the function is concave down.

(e) Use this information to sketch the graph of f. (Do this on paper. Your instructor may ask you to turn in this graph.)

SCalcET6 4.3.046. [803608]

Consider the function below. (If you need to use -∞ or ∞, enter -INFINITY or INFINITY.)

$$f(x) = \frac{x^2}{(x-4)^2}$$

(a) Find the vertical and horizontal asymptotes.

x =		P	4
<i>y</i> =		P	1

(b) Find the interval where the function is increasing.

(<i></i> 0	,		P	4)
---	--	-----------	---	--	---	---	---

Find the intervals where the function is decreasing. (Enter the interval that contains smaller numbers first.)

	-INFINITY		<i>∞</i> 0) U (. پ	4		D	INFINITY)
\	-1141 11411 1	/	- U			7	,			1

(c) Find the local minimum value.

|--|

(d) Find the inflection point.

(-2 ,	<u>></u> 0.111	2
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Find the interval where the function is concave up. (Enter the interval that contains smaller numbers first.)

Find the intervals where the function is concave down.

(e) Use this information to sketch the graph of f. (Do this on paper. Your instructor may ask you to turn in this graph.)

35. Question Details

SCalcET6 4.3.053.MI. [1386587]

Suppose the derivative of a function f is given below. On what interval is f increasing? (Enter the interval that contains smaller numbers first. If you need to use $-\infty$ or ∞ , enter -INFINITY or INFINITY.)

$$f'(x) = (x + 2)^4(x - 5)^7(x - 6)^6$$
 5 , [Solution in the proof of the proof of

Assignment Details

Name (AID): MATH 141 HW 10 (6458515)

Submissions Allowed: **100** Category: **Homework**

Code: Locked: **Yes**

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