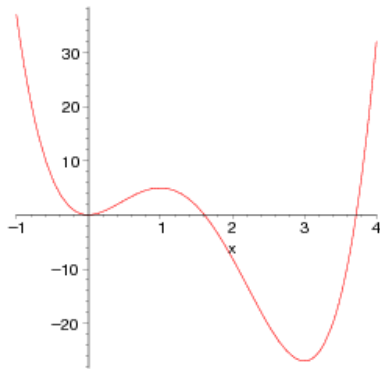


Week 9 Tuesday Homework (1328402)

Question 12345678910111213141516

1. Question DetailsSCalcET6 4.1.AE.04. [703807]

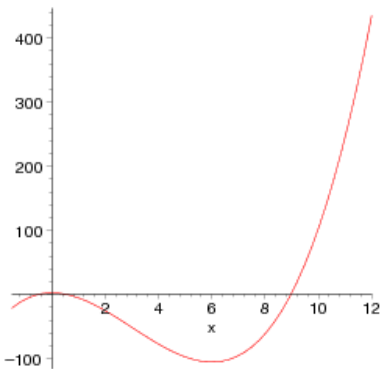
[Video Example](#)[Online Textbook](#)**EXAMPLE 4** The graph of the function

$$f(x) = 3x^4 - 16x^3 + 18x^2$$

$$-1 \leq x \leq 4$$

is shown in the figure. You can see that $f(1) = \boxed{}$ is a local maximum whereas the absolute maximum is $f(\boxed{}) = \boxed{}$. (This absolute maximum is not a local maximum because it occurs at an endpoint.) Also, $f(0) = \boxed{}$ is a local minimum and $f(3) = \boxed{}$ is both a local and an absolute minimum. Note that f has neither a local nor an absolute maximum at $x = 4$.

2. Question DetailsSCalcET6 4.1.AE.08. [1291471]

[Online Textbook](#)**EXAMPLE 8** Find the absolute maximum and minimum values of the function below.

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

$$-\frac{3}{2} \leq x \leq 12$$

SOLUTION Since f is continuous on $[\boxed{}, \boxed{}]$, we can use the Closed Interval Method:

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

$$f'(x) = \boxed{}$$

Since $f'(x)$ exists for all x , the only critical numbers of f occur when $f'(x) = \boxed{}$, that is, $x = 0$ or $x = \boxed{}$. Notice that each of these critical numbers lies in the domain of $f(x)$. The values of f at these critical numbers are

$$f(0) = \boxed{} \text{ and } f(6) = \boxed{}$$

The values of f at the endpoints of the interval are

$$f(-3/2) = \boxed{} \text{ and } f(12) = \boxed{}$$

Comparing these four numbers, we see that the absolute maximum value is $f(12) = \boxed{}$ and the absolute minimum value is $f(6) = \boxed{}$. Note that in this example the absolute maximum occurs at the endpoint, whereas the absolute minimum occurs at a critical number. The graph of f is sketched in the figure.

3. Question DetailsSCalcET6 4.1.022. [803576]

Sketch the graph of f by hand. (Do this on paper. Your instructor may ask you to turn in this graph.) Use your sketch to find the absolute and local maximum and minimum values of f . (If there is not one, enter NONE.)

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

$$-4 \leq x < 5$$

absolute maximum

absolute minimum

local maximum

local minimum

4. Question DetailsSCalcET6 4.1.029. [703671]
Find the critical number of the function.

$$f(x) = 10x^2 + 4x$$

x =

5. Question DetailsSCalcET6 4.1.031.MI. [1387549]
Find the critical numbers of the function.

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

x = (smaller value)

x = (larger value) [Tutorial](#)

6. Question DetailsSCalcET6 4.1.033.MI. [1386936]
Find the critical numbers of the function. (Round your answers to three decimal places.)

$$s(t) = 3t^4 + 20t^3 - 6t^2$$

t = (smallest value)

t =

t = (largest value) [Tutorial](#)

7. Question DetailsSCalcET6 4.1.039. [803564]
Find the critical numbers of the function. (Enter your answers as fractions.)

$$F(x) = x^{4/5}(x - 9)^2$$

x = (smallest value)

x =

x = (largest value)

8. Question DetailsSCalcET6 4.1.047. [803583]
Find the absolute maximum and absolute minimum values of f on the given interval.

$$f(x) = 3x^2 - 12x + 1$$

[0, 6]

(min)

(max)

9. Question DetailsSCalcET6 4.1.049.MI. [1387866]
Find the absolute maximum and absolute minimum values of f on the given interval.

$$f(x) = 2x^3 - 6x^2 - 48x + 3$$

[-3, 5]

(min)

(max) [Tutorial](#)

10. Question DetailsSCalcET6 4.1.054.MI. [1387422]
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]

(min)

(max) [Tutorial](#)

11. Question DetailsSCalcET6 4.1.055.MI. [1387313]
Find the absolute maximum and absolute minimum values of f on the given interval. (Round all answers to one decimal place.)

$$f(t) = t\sqrt{25 - t^2}$$

[-1, 5]

(min)

(max) [Tutorial](#)

12. Question DetailsSCalcET6 4.1.059. [803577]
Find the absolute maximum and absolute minimum values of f on the given interval. (Round all answers to two decimal places.)

$$f(x) = xe^{-x^2/8}$$

[-2, 4]

(min)

(max)

13. Question DetailsSCalcET6 4.1.060. [803568]Find the absolute maximum and absolute minimum values of f on the given interval. (Round all answers to two decimal places.)

$$f(x) = x - \ln(3x)$$

$$[0.5, 2]$$

 (min) (max)**14.** Question DetailsSCalcET6 4.1.062. [803584]Find the absolute maximum and absolute minimum values of f on the given interval.

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

$$[0, 1]$$

 (min) (max)**15.** Question DetailsSCalcET6 4.1.067. [803569]

Use calculus to find the absolute maximum and minimum values of the function. (Round all answers to three decimal places.)

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

 (min) (max)**16.** Question DetailsSCalcET6 4.1.068. [803585]

Use calculus to find the absolute maximum and minimum values of the function. (Round all answers to three decimal places.)

$$f(x) = x - 2\cos(x)$$

$$[-2, 0]$$

 (min) (max)

Assignment Details

Name (AD): **Week 9 Tuesday Homework (1328402)**Submissions Allowed: **5**Category: **Homework**

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