

Student: _____
Date: _____
Time: _____

Instructor: Dan Yasaki
Course: MAT 120 (Summer 2013)
Book: Barnett: Calculus for Business,
Economics, Life/Social Sciences, 12e

Assignment: 4.4 & 5.1 Quiz

1. Replace ? with an expression that will make the equation valid.

$$\frac{d}{dx}(6 - 5x^2)^4 = 4(6 - 5x^2)^3 \underline{\quad ? \quad}$$

The missing expression is . (Simplify your answer.)

2. Replace ? with an expression that will make the equation valid.

$$\frac{d}{dx} e^{x^5+6} = e^{x^5+6} \underline{\quad ? \quad}$$

The missing expression is .

3. Find $f'(x)$ and simplify.

$$f(x) = 9 \ln(5 + 4x^2)$$

$$f'(x) = \text{$$

4. Find $f'(x)$ and find the equation of the line tangent to the graph of f at the indicated value of x . Find the value(s) of x where the tangent line is horizontal.

$$f(x) = (6x - 5)^{1/2}, \quad x = 1$$

$$f'(x) = \text{$$

The equation of the line tangent to the graph of f at $x = 1$ is $y = \text{$.
(Use integers or fractions for any numbers in the expression.)

Select the correct choice below and fill in any answer boxes in your choice.

- A. The value(s) of x where the tangent line is horizontal is .
(Use a comma to separate answers as needed.)
- B. The tangent line is never horizontal.

Student: _____
Date: _____
Time: _____

Instructor: Dan Yasaki
Course: MAT 120 (Summer 2013)
Book: Barnett: Calculus for Business,
Economics, Life/Social Sciences, 12e

Assignment: 4.4 & 5.1 Quiz

5. Find $f'(x)$ and find the equation of the line tangent to the graph of f at the indicated value of x .

$$f(x) = \frac{x}{(2x-1)^3}, \quad x = 1$$

$f'(x) =$

The equation of the line tangent to the graph of f at $x = 1$ is $y =$.

(Type your answer in slope-intercept form.)

6. Find the critical values for the function below.

$$f(x) = 12x^3 - 27x^2 - 36x + 6$$

Find the critical values for $f(x) = 12x^3 - 27x^2 - 36x + 6$. Select the correct choice below and fill in any answer boxes within your choice.

A. The critical value(s) is/are .
(Use a comma to separate answers as needed.)

B. There are no critical values.

7. For the function below, find (A) $f'(x)$, (B) the critical values of f , and (C) the partition numbers for f' .

$$f(x) = (x+8)^{6/7}$$

(A) $f'(x) =$

(B) Find the critical values of f . Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

A. The critical value(s) is/are $x =$. (Use a comma to separate answers as needed.)

B. There are no critical numbers.

(C) Find the partition values for f' . Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

A. The partition value(s) is/are $x =$. (Use a comma to separate answers as needed.)

B. There are no partition numbers.

Student: _____
Date: _____
Time: _____

Instructor: Dan Yasaki
Course: MAT 120 (Summer 2013)
Book: Barnett: Calculus for Business,
Economics, Life/Social Sciences, 12e

Assignment: 4.4 & 5.1 Quiz

8. Find the intervals on which $f(x)$ is increasing, the intervals on which $f(x)$ is decreasing, and the local extrema.

$$f(x) = 2x^3 - 3x^2 - 120x$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The function is increasing on .
(Type your answer using interval notation. Use a comma to separate answers as needed.)
- B. There is no solution.

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The function is decreasing on .
(Type your answer using interval notation. Use a comma to separate answers as needed.)
- B. There is no solution.

Which statement regarding the local extrema of the function is true? Choose the correct answer below.

- A. The function has a local maximum at $x = -4$ and a local minimum at $x = 5$.
- B. The function has a local minimum at $x = -4$ and a local maximum at $x = 5$.
- C. The function has no local extrema.

Student: _____
Date: _____
Time: _____

Instructor: Dan Yasaki
Course: MAT 120 (Summer 2013)
Book: Barnett: Calculus for Business,
Economics, Life/Social Sciences, 12e

Assignment: 4.4 & 5.1 Quiz

9. Find the intervals on which $f(x)$ is increasing, the intervals on which $f(x)$ is decreasing, and the local extrema.

$$f(x) = 2x^4 - 40x^3 + 17$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The function is increasing on .
(Type your answer using interval notation. Use a comma to separate answers as needed.)
- B. There is no solution.

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The function is decreasing on .
(Type your answer using interval notation. Use a comma to separate answers as needed.)
- B. There is no solution.

Which statement regarding the local extrema of the function is true? Choose the correct answer below.

- A. The function has a local minimum at $x = 15$.
- B. The function has a local maximum at $x = 0$.
- C. The function has a local maximum at $x = 0$ and a local minimum at $x = 15$.
- D. The function has a local minimum at $x = 0$.

Student: _____
Date: _____
Time: _____

Instructor: Dan Yasaki
Course: MAT 120 (Summer 2013)
Book: Barnett: Calculus for Business,
Economics, Life/Social Sciences, 12e

Assignment: 4.4 & 5.1 Quiz

1. $-10x$

2. $5x^4$

3. $\frac{72x}{4x^2 + 5}$

4. $\frac{3}{(6x - 5)^{1/2}}$
 $3x - 2$
B

5. $-\frac{4x + 1}{(2x - 1)^4}$
 $-5x + 6$

6. A, $-\frac{1}{2}, 2$

7. $\frac{6}{7(x + 8)^{1/7}}$
A, -8
A, -8

8. A, $(-\infty, -4), (5, \infty)$
A, $(-4, 5)$
A

9. A, $(15, \infty)$
A, $(-\infty, 15)$
A