

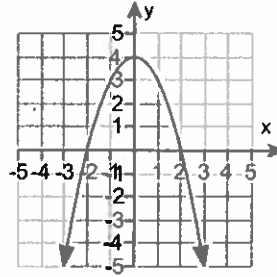
Student: _____
Date: _____

Instructor: Andreas Lazari
Course: Math1111-Summer2018

Assignment: Section 2.2 Homework

1. Use the graph to determine

- open intervals on which the function is increasing, if any.
- open intervals on which the function is decreasing, if any.
- open intervals on which the function is constant, if any.



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

- A. The function is increasing on the interval(s) $(-\infty, 0)$.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. There is no interval on which the function is increasing.

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

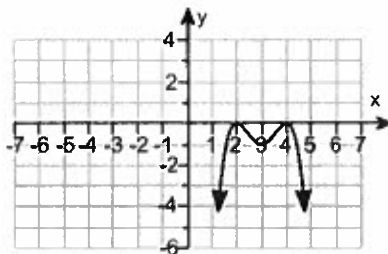
- A. The function is decreasing on the interval(s) $(0, \infty)$.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. There is no interval on which the function is decreasing.

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

- A. The function is constant on the interval(s) _____.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. There is no interval on which the function is constant.

2. Use the graph to determine

- (a) open intervals on which the function is increasing, if any.
- (b) open intervals on which the function is decreasing, if any.
- (c) open intervals on which the function is constant, if any.



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

- A. The function is increasing on the interval(s) $(-\infty, 2), (3, 4)$
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. The function is never increasing.

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

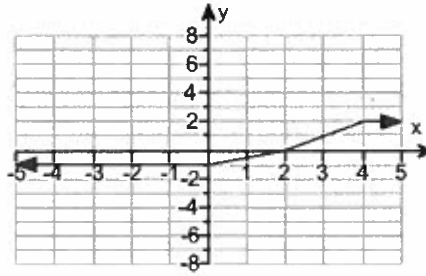
- A. The function is decreasing on the interval(s) $(2, 3), (4, \infty)$
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. The function is never decreasing.

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

- A. The function is constant on the interval(s) _____.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. The function is never constant.

3. Use the graph to determine

- (a) open intervals on which the function is increasing, if any.
- (b) open intervals on which the function is decreasing, if any.
- (c) open intervals on which the function is constant, if any.



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

- A. The function is increasing on the interval(s) (0, 4).
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. The function is never increasing.

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

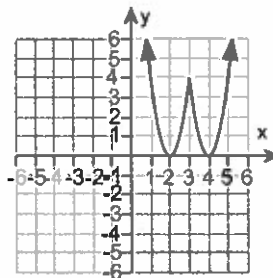
- A. The function is decreasing on the interval(s) _____.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. The function is never decreasing.

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

- A. The function is constant on the interval(s) $(-\infty, 0)$, $(4, \infty)$.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. The function is never constant.

4. Use the graph to determine the following.

- (a) Find the numbers at which f has a relative maximum. What are these relative maxima?
- (b) Find the numbers at which f has a relative minimum. What are these relative minima?



(a) The number(s) at which f has a relative maximum is/are 3.
(Type an integer or a decimal. Use a comma to separate answers as needed.)

The relative maximum/maxima is/are 4.
(Type an integer or a decimal. Use a comma to separate answers as needed.)

(b) The number(s) at which f has a relative minimum is/are 2, 4.
(Type an integer or a decimal. Use a comma to separate answers as needed.)

The relative minimum/minima is/are 0, 0.
(Type an integer or a decimal. Use a comma to separate answers as needed.)

5. Determine if the function is even, odd, or neither.

$$f(x) = x^7 + x^3$$

The function f is:

- A. neither
 B. even
 C. odd

6. Determine if the function is even, odd, or neither.

$$g(x) = x^{12} + x^3$$

The function g is:

- A. odd
 B. even
 C. neither

7. Determine if the function is even, odd, or neither.

$$h(x) = x^4 - x^6$$

The function h is:

- A. neither
 B. even
 C. odd

8. Evaluate the piecewise function at the given values of the independent variable.

$$f(x) = \begin{cases} 3x + 5 & \text{if } x < 0 \\ 2x + 7 & \text{if } x \geq 0 \end{cases}$$

(a) $f(-1)$ (b) $f(0)$ (c) $f(1)$

(a) $f(-1) = \underline{2}$

$$f(-1) = 3(-1) + 5 = 2$$

(b) $f(0) = \underline{7}$

$$f(0) = 2(0) + 7 = 7$$

(c) $f(1) = \underline{9}$

$$f(1) = 2(1) + 7 = 9$$

9. Evaluate the piecewise function at the given values of the independent variable.

$$h(x) = \begin{cases} \frac{x^2 - 16}{x - 4} & \text{if } x \neq 4 \\ 4 & \text{if } x = 4 \end{cases}$$

(a) $h(3)$

(b) $h(0)$

(c) $h(4)$

(a) $h(3) = \underline{7}$

(b) $h(0) = \underline{4}$

(c) $h(4) = \underline{4}$

$$h(3) = \frac{(3^2) - 16}{3 - 4} = \frac{9 - 16}{-1} = \frac{-7}{-1} = 7.$$

$$h(0) = \frac{0^2 - 16}{0 - 4} = \frac{-16}{-4} = 4$$

→ $h(4) = 4.$

1. A. The function is increasing on the interval(s) $(-\infty, 0)$.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- A. The function is decreasing on the interval(s) $(0, \infty)$.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. There is no interval on which the function is constant.
-

2. A. The function is increasing on the interval(s) $(-\infty, 2), (3, 4)$.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- A. The function is decreasing on the interval(s) $(2, 3), (4, \infty)$.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. The function is never constant.
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3. A. The function is increasing on the interval(s) $(0, 4)$.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. The function is never decreasing.
- A. The function is constant on the interval(s) $(-\infty, 0), (4, \infty)$.
(Type your answer in interval notation. Use a comma to separate answers as needed.)
-

4. 3
4
2,4
0,0
-

5. C. odd

6. C. neither

7. B. even

8. 2
7
9
-

9. 7
4
4
-