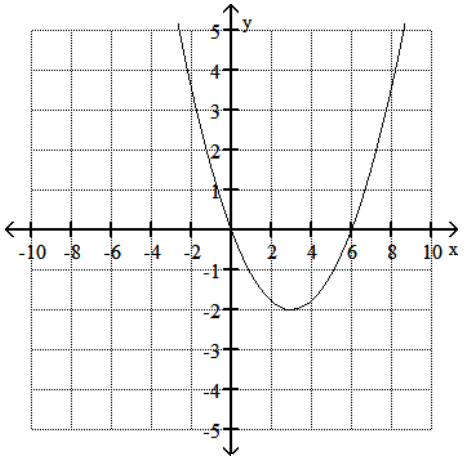
MAC1105 College Algebra
2.2: Piece-wise functions and symmetry. Practice 04.

Identify the intervals where the function is changing as requested.

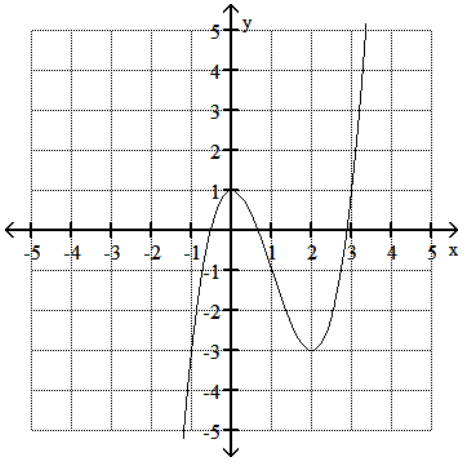
1) Increasing 1) _____



A) (3, 6) B) (3, ∞) C) (-2, ∞) D) (-2, 0)

Use the graph of the given function to find any relative maxima and relative minima.

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



A) maximum: none; minimum: (2, -3) B) no maximum or minimum
C) maximum: (0, 1); minimum: (2, -3) D) maximum: (0, 1); minimum: none

Determine whether the given function is even, odd, or neither.

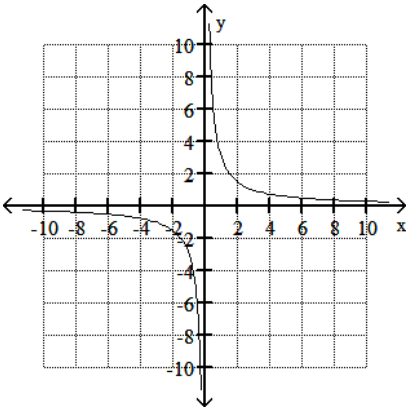
3) $f(x) = x^3 - 2x$ 3) _____
A) Neither B) Odd C) Even

4) $f(x) = 3x^2 + x^4$ 4) _____
A) Even B) Neither C) Odd

5) $f(x) = x^5 - x^4$ 5) _____
A) Even B) Neither C) Odd

Use possible symmetry to determine whether the graph is the graph of an even function, an odd function, or a function that is neither even nor odd.

6) 6) _____



A) Neither B) Odd C) Even

Evaluate the piecewise function at the given value of the independent variable.

7) $f(x) = \begin{cases} -3x - 1 & \text{if } x < 0 \\ -4x - 2 & \text{if } x \geq 0 \end{cases}$; $f(3)$ 7) _____

A) -13 B) -15 C) -14 D) -11

8) $h(x) = \begin{cases} \dfrac{x^2 - 7}{x - 1} & \text{if } x \neq 1 \\ x + 1 & \text{if } x = 1 \end{cases}$; $h(1)$ 8) _____

A) undefined B) -2 C) 2 D) 0

Graph the function.

9) $f(x) = \begin{cases} x - 3 & \text{if } x < 1 \\ -5 & \text{if } x \geq 1 \end{cases}$

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

Find and simplify the difference quotient $\dfrac{f(x + h) - f(x)}{h}$, $h \neq 0$ for the given function.

11) $f(x) = 2x + 9$ 11) _____

A) $2 + \dfrac{18}{h}$ B) 0 C) $2 + \dfrac{4(x + 9)}{h}$ D) 2

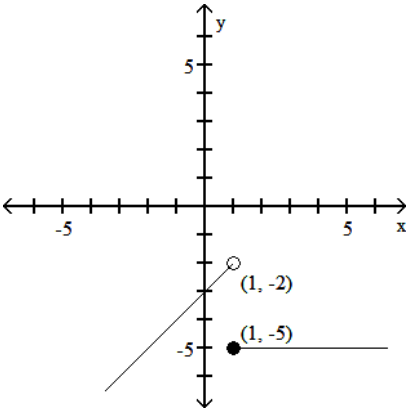
12) $f(x) = 8x^2$ 12) _____

A) $\dfrac{16}{h} + x + 8h$ B) 8

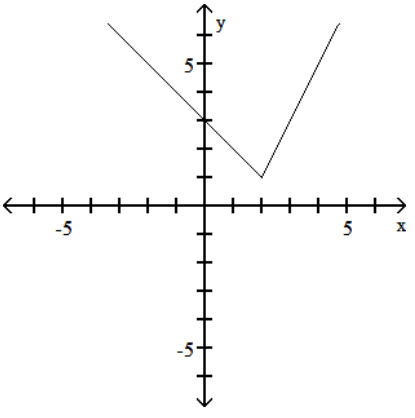
C) $8(2x+h)$ D) $\dfrac{8(2x^2 + 2xh + h^2)}{h}$

Answer Key
Testname: PRACTICE04

1) B
2) C
3) B
4) A
5) B
6) B
7) C
8) C
9)



10)



11) D
12) C