Functions A2RCC U1D4 Stations Practice Name



## Key Features of Graphs

Using the graph of f(x) below on the right, answer the following questions.

- A) What are the x-intercepts? What alternative names can we give the x-intercepts?
- B) What is the y-intercept?
- C) State all the intervals where the function decreasing?



D) State all the intervals where the function increasing?

- E) For what intervals is f(x) > 0?
- F) For what intervals is the function negative?
- G) What are the relative maximums?
- H) What are the relative minimums?
- I) What is the absolute maximum?
- J) What is the absolute minimum?
- K) If g(x) is defined by the formula  $g(x) = \frac{1}{2}f(x+2)$ , what is the y-intercept of g? (*Remember: to find the y-intercept, you need to set* x = 0)

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## **Evaluate Functions**

- 1) Let  $h(x) = -x^2 + 2x 5$ , evaluate h(-7)
- 2) Let  $h(x) = -x^2 + 2x 5$ , represent h(x + 3) as a trinomial.

## Compositions

- 3) If f(x) = 2x + 1 and g(x) = 4x<sup>2</sup> + 3
  a. Evaluate f(g(-5))
- b. Represent  $g \circ f(x)$  as a trinomial.

- 4) Use the table to find each of the following.
  - a) f(g(2)) =\_\_\_\_\_ b) g(f(2)) =\_\_\_\_\_
  - c) f(g(3)) =\_\_\_\_\_

x	f(x)	g(x)
2	4	5
3	8	4
4	9	12
5	3	7

- 5) Use the graph to find each of the following.
  - a) f(g(3))=\_\_\_\_\_
  - b) g(f(0))=\_\_\_\_\_
  - c) f(f(-2))=\_\_\_\_\_







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State if the following relations are functions. If they are functions, state if they are one-to-one functions.







12) y = 2x - 1

13)  $y = x^2 + 7x - 5$  14) y = -4

15) *x* = 3

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Name \_\_\_\_\_\_ Function

State the domain and range of the following graphs using <u>interval notation</u>. Assume the graphs continue to infinity as the picture leaves the screen.



(1) Domain: \_\_\_\_\_

Range: \_\_\_\_\_



(3) Domain: \_\_\_\_\_

Range: \_\_\_\_\_



(2) Domain: \_\_\_\_\_

Range: \_\_\_\_\_



(4) Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Function	Domain and Wny Restricted
(5) $f(x) = 3x + 1$	
(6) $f(x) = \frac{x-1}{2x-5}$	
(7) $f(x) = \sqrt{3x+7}$	
$f(x) = \frac{3x}{\sqrt{8x-1}}$	

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Inverse	$f_{\text{function}} \xrightarrow{\text{function}} f^{-1}$
<b>Recognizing Inverse Function</b> independent and dependent variation by swapping the variation function, and why or why not.	An <u>inverse relation</u> is defined as any relation that swaps the bles. Determine whether the inverse of every function is a les in each relation below to determine if the new relation is a
<ol> <li>the set of ordered pairs {( Swap the x and y and write</li> </ol>	y) : (1, 2), (3, 5), (3, 6), (7, 5), (8, 2)} a new set of ordered pairs:
Is the new relation a funct	on of x? Explain why or why not

2. Find the inverse of  $f(x) = \sqrt{x-3}$  on the domain  $x \ge 0$  algebraically and graphically.

	1 1
	10
	9
	8
	7
	6
	5
	4
	3
	2
	1
-10 -9 -8 -7 -6 -5 -4 -3 -2	-1 0 1 2 3 4 5 6 7 8 9 10
	-2
	3
	4
	5
	6
	7
	8
	.9
	-10

3. State if the following functions are inverses. Justify your response.

$$f(n) \doteq \frac{-16+n}{4}$$
$$g(n) = 4n + 16$$

Functions N A2RCC U1D4 Stations Practice Name, state the equation and sketch the parent functio	n.
1. $g(x) = 2x^2 + 6x - 3$	2. $f(x) = -4 x+3 $
3. $j(x) = 7\sqrt{3x - 2}$	4. $f(x) = 2x - 7$
5. $g(x) = \frac{x-1}{x+6}$	6. $h(x) = -5x^3 - 4$
7. $f(x) = log_3(x - 7)$	8. $g(x) = (x+5)^2 - 8$
9. $h(x) = 3^{x-5} + 2$	10. $f(x) = \frac{x}{3} + 3$