Study of Functions

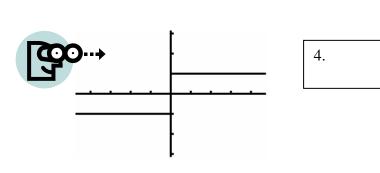
Study Cards

(functions, domain, range, continuous, odd/even, inverse, algebra, composition)

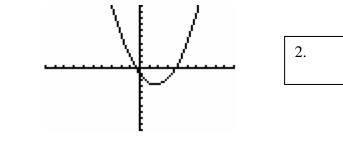
Directions: Answer the following questions pertaining to the study of functions. You may use your graphing calculator to assist you in answering these questions. Upon completion of this review sheet, obtain a copy of the study card stack, **STUFUNC**, for your graphing calculator. Use the study cards to correct your review sheet. Be sure to read the explanations associated with any questions you may have not answered correctly.

 $f(x) = \frac{1}{2x-6}$?

- 1. Study of Functions Title Screen (When using the cards, hit 1 at this screen for a free answer to question 1.)
- Choose the best answer:
- 2. Pertaining to the graph at the right:
 - 1. the graph is a function
 - 2. the graph is NOT a function
 - 3. cannot be determined
- 3. What is the domain of the function,
 - 1. all real numbers
 - 2. all real numbers excluding 3
 - 3. all real numbers excluding -3
 - 4. all real numbers excluding 3 and -3
- 4. Pertaining to the graph at the right, what is the range of this function?
 - 1. $\{y \mid y \text{ is any real number}\}$
 - 2. $\{y \mid -1 < y < 1\}$
 - 3. $\{y \mid y = -1 \text{ or } y = 1\}$



- 5. What is the domain of the function, $f(x) = \sqrt{x+4}$?
 - 1. all real numbers
 - 2. all real numbers >= 4
 - 3. all real numbers > -4
 - 4. all real numbers ≥ -4

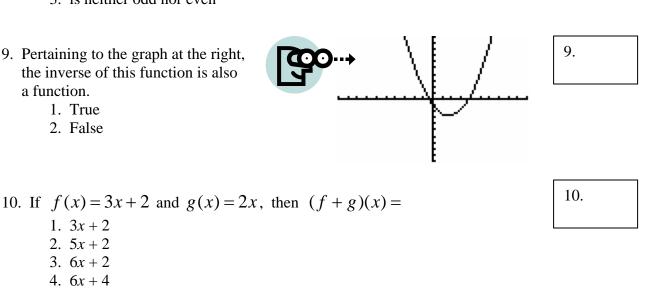




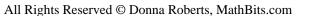
- 6. What is the domain of the function, $f(x) = \frac{4}{\sqrt{x-2}}$?
 - 1. all real numbers
 - 2. all real numbers ≥ 2
 - 3. all real numbers > 2
 - 4. all real numbers excluding 2
- 7. Pertaining to the graph at the right:
 - 1. the function is continuous
 - 2. the function is NOT continuous
 - 3. cannot be determined

8. The function,
$$f(x) = \frac{1}{2}x^3$$
,

- 1. is odd
- 2. is even
- 3. is neither odd nor even
- 9. Pertaining to the graph at the right, the inverse of this function is also a function.
 - 1. True
 - 2. False



11. If f(x) = 2x - 1 and $g(x) = x^2$, then $f(g(x)) = x^2$ 1. $(2x - 1)^2$ 2. $(2x)^2 - 1$ 3. $2x^2 - 1$ 4. $x^2 + 2x - 1$





7.

8.

11.

12. When graphing split-definition functions (piecewise defined) on the TI-83+ or TI-84+, the domain restriction -1 < x < 6 would be entered as:



- 1. Y1 = .../ (-1 < x < 6)
- 2. Y1 = .../ (-1 < x) (x < 6)
- 3. Y1 = .../ ((-1 < x) and (x < 6))
- 4. The expression -1 < x < 6 cannot be entered on the graphing calculator.

13. The inverse of a function is a reflection of the original function over the

1. x - axis

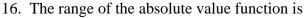
2. y - axis

3. identity line y = x

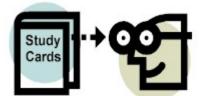
14. The function,
$$f(x) = 3x^2 - 1$$
,

- 1. is odd.
- 2. is even.
- 3. is neither

15. If
$$f(x) = x^2 - 2x - 1$$
, then $f(-2t) =$
1. 7
2. $-2t^2 + 4t - 1$
3. $4t^2 + 4t - 1$
4. $4t^2 - 4t - 1$



- 1. all real numbers.
- 2. all $y \ge 0$
- 3. all $y \le 0$



When you have finished this review sheet, obtain the study Card stack, STUFUNC, and check your answers.

13.

12.

14.	

15.		

