**Gonzaga 2013 Math 3200 - Chapter 1: Function Transformations**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***Part A: Multiple Choice (15 marks)***

***\_\_\_\_\_***1. The function is transformed to . How is the image transformed?

A) translated 3 units to the right of

B) translated 3 units above

C) translated 3 units below

D) translated 3 units to the left of

\_\_\_\_\_2. The graphs of are shown below. Which mapping rule would map onto ?

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | | |
|  |  |  |
|  | A) |  |
|  | B) |  |
|  | C) |  |
|  | D) |  |
|  |  |  |

\_\_\_\_\_3. If is replaced by in the equation , the graph of will be stretched

A) horizontally by a factor

B) vertically by a factor of 2

C) horizontally by a factor of 2

D) vertically by a factor of

\_\_\_\_\_4. Given the graph of below, what would the image point of (3,0) be for the transformed graph ?



A) (-3,0) B) (0,3) C) (3,0) D) (0,-3)

\_\_\_\_\_5. The graph of is reflected in the *x*-axis, horizontally stretch by a factor of 2, translated 3 units to the left, and 1 unit down. What is the equation of the transformed graph?

A)

B)

C)

D)

\_\_\_\_\_6. What is the mapping rule when is transformed to ?

A)

B)

C)

D)

\_\_\_\_\_7. Which 2 functions are inverses of each other?

A) *f* and *g* B) *f* and *h* C) *g* and *h* D)none are inverses

\_\_\_\_\_8. What is the new equation if graph A is transformed to graph B?



A) B) C) D)

\_\_\_\_\_9. The graph of contains the point (3,4). Which of the following equations describe the transformations whereby (3, 4) (5, 5)?



A) B)

C) D)

\_\_\_\_\_10. Which of the following transformations to the graph of would have the x-intercepts as invariant points?

A) B)

C) D)

\_\_\_\_\_11. What is the equation of the inverse function for

A) B)

C) D)

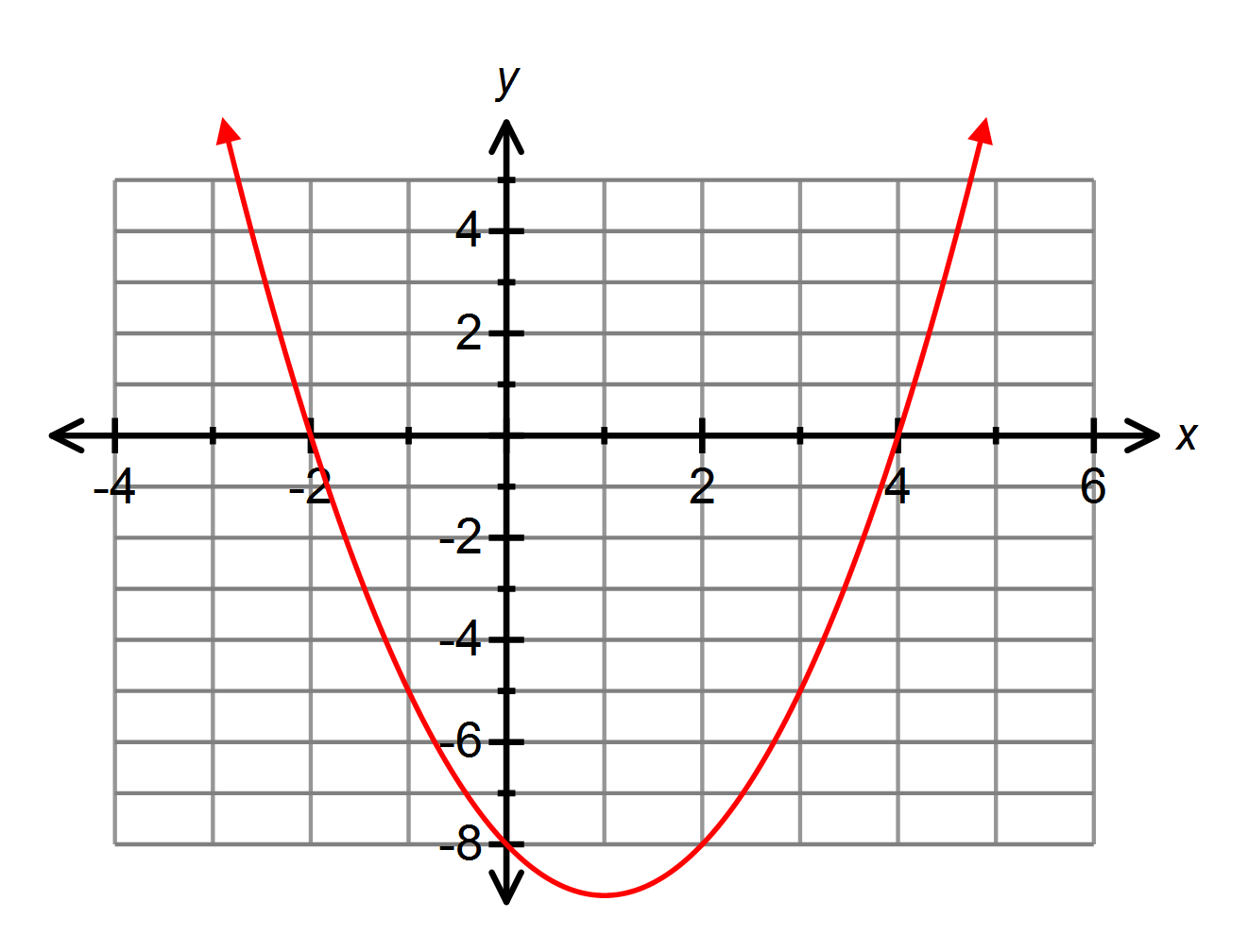
\_\_\_\_\_12. The function is transformed to . If the original domain is

, what is the domain of the transformed function?

A) B)

C) D)

\_\_\_\_\_13. What are the zeros of the function  after the transformation   
 ?



(A)   
(B)   
(C)   
(D) 

\_\_\_\_\_14. Given the graph of , which of the following represents the graph of ?



A) B)



C) D)

\_\_\_\_\_15. What is the line of reflection if graph A is transformed to graph B?



A)

B)

C)

D)

***Part B: Long answer questions. Show all workings to receive full marks. (14 marks)***

16. Given , state the mapping rule and sketch . (4 marks)



Mapping Rule:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. Graph B is a transformation of graph A. Determine the equation of graph B in the form . (5 marks)



18. **Restrict the domain** of the function so that it's inverse will also be a function. **Find the inverse equation** and **state its domain**. (5 marks)