**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

A2T Unit 5 Test Review

Inverses, Radical Functions, & Relations

**Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block\_\_\_**

**Target A:** I can apply operations with functions, evaluate compositions of functions, verify inverses using

composition of functions, and apply composition of functions to real world applications.

|  |  |  |  |
| --- | --- | --- | --- |
| **1-9: Given the functions below, perform each operation given.** *Show all work and circle your final answer.* | | | |
| f(x) = 2x – 8 f-1(x) =  g(x) = x2 – 4 h(x) = 2|x| + 1 m(x) = 2x2 – 3x + 5 | | | |
| 1. f(h(-2)) | **2.** f(g(-2x)) | | **3.** f(g(x + 1)) |
| **4.** f-1(f(4)) | **5.** f(g(x)) | | **6.** ()(x) |
| **7.** (g + m)(x) | **8.** (g – m)(x) | | **9.** (f • g)(x) |
| **10-11: For each pair of functions, find f o g and g 0 f, if they exist.** | | | |
| **10.** f = {(-1, 2,), (5,6), (0,9)}  g = {(6,0), (2,-1), (9,5)} | | **11.** f = {(5,-2), (9,8), (-4,3), (0,4)}  g = {(3,7), (-2,6), (4,-2), (8,10)} | |
| **12-13: Use the *composition of functions* to determine whether functions f(x) and g(x) are inverses of each other.** | | | |
| **12.** f(x) = 6x – 2 | | **13.** f(x) = 2x + 3 g(x) = (x – 3) | |
| **14: Solve the real-world application of a composition of functions.** | | | |
| You work forty hours a week at a furniture store. You receive a $220 weekly salary, plus a 3% commission on sales over $5000. Assume that you sell enough this week to get the commission. Given the functions f(x) = 0.03x and g(x) = x – 5000, which of  (f o g)(x) and (g o f)(x) represents your commission? | | | |

**Target B:** I can graph a function, including square root functions and its inverse and identify the domain and range of each;

I can find the equation of the inverse of a function.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **15-17: Write the equation of the inverse of each function.** *Show your work and circle your answer (use proper notation)!* | | | | |
| **15.** f(x) = 3x – 7 | | **16.** g(x) = x2 + 3 | | **17.** |
| **18-20: a. Graph the function in pencil and its inverse in colored pencil, pen or highlighter. Label each graph.**  **b. Graph and label the line of reflection using dashed line.**   1. **State the domain and range of both in interval notation, and state if the INVERSE is a function.** | | | | |
| **18.** f(x) = 3x - 7    **Function:** Domain:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Inverse:** Domain:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Is the Inverse a function:** YES or NO | **19.** g(x) = x2 + 3    **Function:** Domain:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Inverse:** Domain:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Is the Inverse a function:** YES or NO | | **20.**  **Function:** Domain:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Inverse:** Domain:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Is the Inverse a function:** YES or NO | |
| **21-23: Graph each function *without a calculator* and state the domain and range in interval notation.** | | | | |
| **21.**    Domain:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | **22.**  Domain:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | **23.**    Domain:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Range:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |

**Target C:** I can simplify expressions containing rational exponents and radicals of a variety of indices.

|  |  |  |  |
| --- | --- | --- | --- |
| 24-25: Write each expression in rational exponent form. *Circle your final answer.* | | | |
| 24. | | 25. | |
| **26-27: Write each expression in simplified radical form.** *Circle your final answer.* | | | |
| **26.** | | **27.** | |
| **28-42: Simplify each expression. Write your final answer in simplified radical form.** *Circle your final answer.* | | | |
| **28.** | **29.** | **30.** | **31.** |
| **32.** | 33. | 34. | 35. |
| **36.** | **37.** | **38.** | **39.** |
| **40.** | **41.** | **42.** | |

**Target D:** I can solve equations containing rational exponents or radicals.

|  |  |  |  |
| --- | --- | --- | --- |
| **43-52: Solve each radical equation. Check for extraneous solutions. You may use your calculator!** *Circle your final answer.* | | | |
| 43. | 44. | | 45. |
| **46.** 7x - 5 = 0 | **47.** | | **48.** |
| 49. | | 50. | |
| 51. | | 52. | |