**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.

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| **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.

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| **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.**
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| **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.

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| 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.

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| **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.  |