**ALGEBRA 2** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block \_\_\_\_

Unit 4, Test 1 Review

**Rational Exponents**

1. **Rewrite** the following using rational exponent notation.
	1. 
	2. 
	3. 

d) 

1. **Rewrite** using radical notation. (2 each)
	1. 
	2. 
	3. 
2. **Evaluate** the expression: No negative Exponents!
	1. () =

b. 16 =

* 1. 4 =

4) Find the compositions of given values if: Let   

1. $f(g\left(3\right))$ **b)** $h(f\left(-1\right))$

 **c)** $g(g\left(x\right))$ **d)** $f(h\left(x\right))$

1. Find the equation of the inverse relation, then determine if the inverse is a function:

a)  b) ; $x\geq 0$ c) 

Function: Yes or No Function: Yes or No Function: Yes or No

D: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ D: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ D: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

R: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ R: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ R: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

6) Name the domain and range of each graph using interval notation.

 a. b. c.

D: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ D: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ D: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

R: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ R: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ R: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7) Circle the expression that does **not** belong in a group with the other three? Justify your reasoning, including any necessary to work to support the explanation. ( a little tricky ☺)

a) $\left(2^{a}\right)^{1/b}$ b) $\left(\sqrt[a]{2}\right)^{b}$ c)$ \left(2\right)^{-b/-a}$ d) $2^{a^{-1}b}$

8) Simplify: No negative exponents!

1. $x^{3/2}∙x^{1/2}$ b) $\sqrt[4]{\frac{n^{10}p^{3}}{n^{2}p^{-1}}}$

 c) $\frac{x^{7/8}y^{11/5}}{x^{1/2}y}$ d) $\left(x^{-2/7}\right)^{7/2}$

9) For $f\left(x\right)=3x^{^{5}/\_{2}}$ and $g\left(x\right)=\left(x\right)^{^{5}/\_{2}}$ answer the following making sure to show all work.

$a) f\left(x\right)-g\left(x\right)$ b) $f\left(x\right)+g(x)$ c) $f(x)∙g(x)$

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| $$x$$ | 0 | 1 | 2 | 3 | 4 |
| $$y$$ | -8 | -1 | 0 | 1 | 8 |

$10) f\left(x\right)=\left(x-2\right)^{3}$ is shown in the table alongside.

Is the inverse of $f\left(x\right)$ a function?\_\_\_\_\_\_\_\_\_\_\_\_ Why/why not?

11) Use composition of functions to decide if$ f\left(x\right) and g\left(x\right)$ are inverse functions. Show work to prove your answer.

$$f\left(x\right)=x^{2}-3 and g\left(x\right)=\sqrt{x+3}$$

12) For $f\left(x\right)=3x+x^{2}$ and $g\left(x\right)=x-1$ answer the following making sure to show all work.

 $a) f\left(x\right)-g\left(x\right)$ b) $f\left(x\right)+g(x)$ c) $f(x)∙g(x)$