Warm Up Unit 4: Radical Functions and Rational Exponents Algebra 2 Kitt

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_\_\_\_\_

**4.1 & 4.2 Simplifying Radicals and Operations of Radicals**

*Directions: Simplify the radical expressions.*

1. $\sqrt{81a^{4}b^{6}}$ 2. $\sqrt[3]{-27a^{3}b^{6}}$ 3. $\sqrt[4]{16x^{4}y^{8}}$

4. $\sqrt[3]{48a^{6}b^{8}c^{12}}$ 5. $\sqrt{3x^{2}y^{4}z^{6}}∙\sqrt{6x^{3}y^{3}}$ 6. $\frac{\sqrt{12x^{8}y^{20}}}{\sqrt{3x^{6}y^{10}}}$

7. $6\sqrt{2}(4\sqrt{3}-8)$ 8. $(3\sqrt{5}-2)(3\sqrt{5}+2)$ 9. $\frac{\sqrt{3}-7}{\sqrt{3}+6}$

**4.3 Rational Exponents**

*Directions: Rewrite each rational exponent as a radical and evaluate.*

10. $9^{\frac{-3}{2}}$ 11. $16^{\frac{5}{4}}$ 12. $x^{\frac{-2}{3}}$

**4.4 Composition Functions and Operations**

*Find* $fog(x)$ *for each pair of functions.*

13. $f\left(x\right)=2x-1$ 14. $f\left(x\right)=x^{2}+1$

 $g\left(x\right)=-3x$ $g\left(x\right)=x+1$

**4.5 Use Inverse Operations**

*Find the inverse of each function. State whether or not the inverse is a function.*

15. $y=(x-1)^{2}$ 16. $y=5x+2$

**4.6 Interval Notation**

**Directions***: Find the domain and write it in interval notation.*

17. $f\left(x\right)=\frac{x-7}{x^{2}-2x-15}$ 18. $h\left(x\right)=\sqrt{2x-8}$ 19. $f\left(x\right)=4x^{3}-7x^{2}+2x+5$

**4.7 Graphing Radical Functions**

**Directions***: Graph each function. Sate the domain and range in interval notation.*

20. $y=\sqrt{x+2}-3$ 21. $y=2\sqrt{x}-5$ 22. $y=\sqrt[3]{x-1}+4$

Domain:\_\_\_\_\_\_\_\_\_\_ Domain: \_\_\_\_\_\_\_\_\_\_ Domain:\_\_\_\_\_\_\_\_\_\_

Range: \_\_\_\_\_\_\_\_\_\_ Range:\_\_\_\_\_\_\_\_\_\_ Range: \_\_\_\_\_\_\_\_\_\_

**4.8 Solve Radical Equations**

**Directions***: Solve each equation. Check your solutions.*

23. $x-6=\sqrt{3x}$ 24. $\sqrt{1-3x}-3=4$ 25. $7-\sqrt{5x+4}=0$ 26. $(5n+2)^{\frac{1}{3}}=1$

**Miscellaneous: Investigate the Graphs**

