Algebra II

Name _____

Exponents and Radicals Review

Simplify. Your answer should contain only positive exponents.

1. $\left(\frac{15xy^3}{3y^2}\right)^{-1}$

2. $\left(\frac{4a^3b^{-3}}{a^{-1}b^2}\right)^{-2}$

3. $\left(a^{-3}b^2\right)^4\left(-2a^3b^7\right)^{-3}$

4. $36^{\frac{1}{4}} \cdot 36^{\frac{1}{4}}$

5. $\left(x^{-\frac{4}{3}}y^{\frac{3}{5}}\right)^{15}$

6. $\left(-32x^{-10}y^{15}\right)^{\frac{2}{5}}$

7. $\left(\frac{81y^{16}}{16x^{12}}\right)^{\frac{1}{4}}$

8. $\frac{\sqrt[6]{x^2}}{\sqrt[3]{x^5}}$

9. $81^{-\frac{3}{4}}$

Simplify. Assume all variables are positive.

10. $\sqrt{36x^3}$

11. $\sqrt[3]{4} \cdot \sqrt[3]{18}$

12. $\sqrt{5a^3} \cdot \sqrt{20a^4}$

13. $\frac{\sqrt{80}}{\sqrt{6}}$

14. $\frac{\sqrt{18x^5y}}{\sqrt{2x^6}}$

15. $\frac{\sqrt[3]{640w^3z^8}}{\sqrt[3]{5wz^4}}$

16. $2\sqrt{7}+3\sqrt{7}$

17. $\sqrt{32}+\sqrt{8}$

18. $8\sqrt{45}-3\sqrt{80}$

19. $\left(2+\sqrt{5}\right)\left(3+\sqrt{5}\right)$

20. $\left(\sqrt{10}+3\right)^2$

21. $\left(3\sqrt{5}-2\right)\left(3\sqrt{5}+2\right)$

Solve. Check for extraneous solutions.

22. $4\sqrt{2x+1}=12$

23. $\sqrt{3x-2}+2=x$

24. $4x^{\frac{2}{3}}=36$

State the parent function, transformations, domain and range. Sketch the function without a GC.

25. $y=\sqrt{x}-1$

26. $y=\sqrt[3]{x+3}$

27. $y=-2\sqrt{x-5}+2$

28. $y=-\sqrt[3]{x-2}-3$