AP Calculus Exponents & Rational Expressions Review

Name: _____ **Date:** _____

1. Another way to write $(a^{-1}+b^{-1})^{-1}$ is

2. If $f(x)=(x^0+x^{\frac{1}{2}})^{-2}$, find $f(9)$.

3. If $f(x)=x^0+x^{\frac{2}{3}}+x^{-\frac{2}{3}}$, find $f(8)$.

4. Solve algebraically for x: $16^{2x+3}=64^{x+2}$

5. If x is a positive integer, $4x^{\frac{1}{2}}$ is equivalent to

6. The expression $\dfrac{3^{\frac{1}{3}}}{3^{-\frac{2}{3}}}$ is equivalent to

7. The expression $b^{-\frac{2}{3}}$, $b>0$, is equivalent to

8. When simplified, the expression $\left(\sqrt[3]{m^4}\right)\left(m^{-\frac{1}{2}}\right)$ is equivalent to

9. The expression $x^{-\frac{2}{5}}$ is equivalent to

10. Re-write the expression $x^{n+1}+2x$ in an equivalent form by "undoing" the law(s) of exponents

11. Re-write the expression $2x^{n-1}-6x$ in an equivalent form by "undoing" the law(s) of exponents

12. Simplify: $\dfrac{7x-7y}{14x}$

13. The expression $\dfrac{(b^{2n+1})^3}{b^n\cdot b^{4n+3}}$ is equivalent to

14. Simplify: $\dfrac{\dfrac{4^{x+1}}{2^{-x}}-8^x}{2^{3x+2}}$

15. $\dfrac{x^{2a}}{x^{2b}}$ is equivalent to which expression?

A. x^{2b-2a} B. x^{2a+2b} C. x^{2a-2b} D. $x^{a/b}$

16. Simplify: $\dfrac{x}{2}+\dfrac{x}{3}$

17. Simplify: $\dfrac{24b^3-8b^2}{-8b^2}$

18. Simplify: $(a^{n+1})^5$

19. Simplify: $\dfrac{-3x}{8}\div\dfrac{6x}{-16x}$

20. Simplify: $\dfrac{a-4}{2a-8}$

21. Solve for k: $\dfrac{k^2-16}{k-4}=0$

22. Simplify: $\dfrac{b^2-25}{b^2-7b+10}$

23. The expression $\dfrac{1}{1+\dfrac{1}{x}}$ is equivalent to:

24. Simplify: $\dfrac{\dfrac{3x+6}{x+5}}{\dfrac{x+2}{x^2-25}}$

25. Simplify: $\dfrac{3x+4}{7}-\dfrac{4}{x}$

26. Simplify: $\dfrac{5x}{x-1}-\dfrac{2x}{x-2}$