Name _____ College Pre-Calc

Final Exam Review #4

Factor each expression completely if factorable.

1. $2x^3+16$ 2. $6x^3+3x^2+2x+1$ 3. x^8-1

Expand

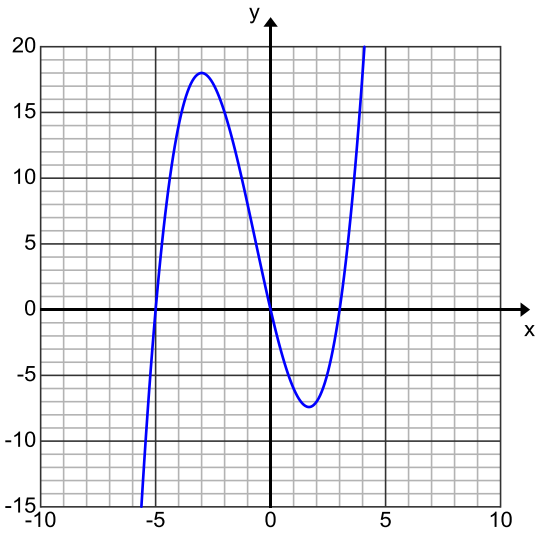
4. $(2a-b)^3$ 5. $\left(x^2+y^3\right)^4$

6. If $f(x)=4\sqrt{x}$ and $g(x)=x-6$, find $(f\circ g)(x)$.

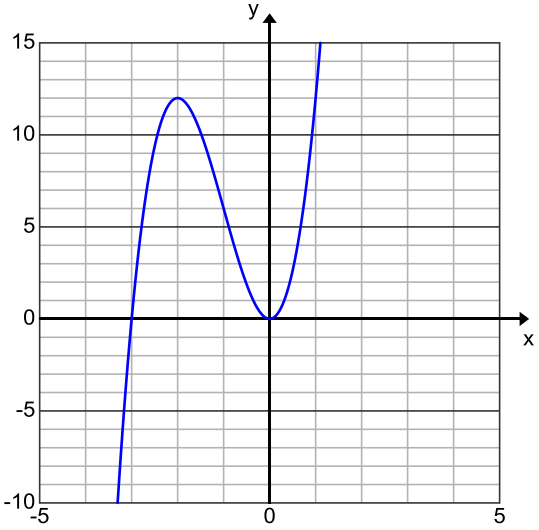
7. Find the inverse of the function $f(x)=2x^3-5$ in the form of $f^{-1}(x)$.

From each graph below state the zeros and classify the multiplicity as either odd or even.

8.



9.



10. Determine if $(2x+1)$ is a factor of $12x^3+2+11x+20x^2$, by using long division.

11. Simplify: $\dfrac{1}{x+1}+\dfrac{x}{x-6}-\dfrac{5x-2}{x^2-5x-6}$

12. Solve for x: $2^{2x+1}\bullet 2^{x}=16$

13. Simplify $\left(\dfrac{2a^{9}b^{-8}}{3ab}\right)^{3}$ using positive exponents only.

Condense each log expression.

14. $\log_4 a+\dfrac{1}{2}\log_4 b$

15. $\log x-\left(4\log y+5\log z\right)$

16. Find the partial fractions whose sum is $\dfrac{x+1}{x^2+4x+3}$.

Find each limit algebraically.

17. $\lim\limits_{x\to 16}\dfrac{-4+\sqrt{x}}{x-16}$

18. $\lim\limits_{x\to 0}\dfrac{\left(x-6\right)^2-36}{x}$