NAME _____ DATE _____ PERIOD _____

Practice

Derivatives and Antiderivatives

Use the derivative rules to find the derivative of each function.

1. $f(x) = 2x^2 - 3x$

2. $f(x) = 6x^3 - 2x + 5$

3. $f(x) = (2x + 7)(3x - 8)$

4. $f(x) = (x^2 + 1)(3x - 2)$

5. $f(x) = (x^2 + 5x)^2$

6. $f(x) = x^2(x^3 + 3x^2)$

Find the antiderivative of each function.

7. $f(x) = x^8$

8. $f(x) = 4x^3$

9. $f(x) = 2x + 3$

10. $f(x) = x(x^2 - 3)$

11. $f(x) = (2x + 1)(3x - 2)$

12. $f(x) = 8x^2 + 2x - 3$

13. ***Physics*** Acceleration is the rate at which the velocity of a moving object changes. The velocity in meters per second of a particle moving along a straight line is given by the function $v(t) = 3t^2 - 6t + 5$, where t is the time in seconds. Find the acceleration of the particle in meters per second squared after 5 seconds. (*Hint:* Acceleration is the derivative of velocity.)