AP Calculus Antiderivatives

Name: _____ **Date:** _____

Class Period: _____

Instructions: Find the antiderivative of each function below with respect to x. Use proper notation. Do not forget to include the constant of integration ($+C$) in your answers. Show all work clearly.

1. If $\frac{df}{dx} = x^4$, find $f(x)$.
2. If $y' = 3x^2 + 1$, find y.
3. If $\frac{df}{dx} = 5x^{-2}$, find $f(x)$.
4. If $y' = \frac{1}{x^3}$, find y.
5. If $\frac{df}{dx} = x^{\frac{3}{2}}$, find $f(x)$.
6. If $\frac{df}{dx} = 3e^x$, find $f(x)$.
7. If $\frac{df}{dx} = \sin(x)$, find $f(x)$.
8. If $y' = \cos(x)$, find y.
9. If $y' = 2\sin(x)$, find y.
10. If $\frac{df}{dx} = -\cos(x)$, find $f(x)$.
11. If $\frac{df}{dx} = 2x^3 + \sin(x)$, find $f(x)$.
12. If $y' = x^2 - \cos(x)$, find y.
13. If $\frac{df}{dx} = 4x^{-1} + e^x$, find $f(x)$.
14. If $y' = \sqrt{x} + 3\cos(x)$, find y.
15. If $\frac{df}{dx} = 5x^4 - 2\sin(x) + \sec^2(x)$, find $f(x)$.