

Name: _____ Score: _____

Teacher: _____ Date: _____

Antiderivative

For questions 1 through 8, find the antiderivative $F(x)$ of each function $f(x)$.

1. $f(x) = 15x^2 + 4x + 3$	2. $f(x) = 2x + 4$
3. $f(x) = 5x^4 + 4x^5$	4. $f(x) = x + 12x^2$
5. $f(x) = \frac{1}{\sqrt{x}}$	6. $f(x) = (\sqrt{x})^5$
7. $f(x) = x^{\frac{1}{3}} + (2x)^{\frac{1}{3}}$	8. $f(x) = \frac{1}{x^2} + x$

For questions 9 and 10, find the function given the derivative

9. Determine $f(x)$ given that $f'(x) = 6x^8 - 20x^4 + x^2 + 9$	10. Determine $h(t)$ given that $h'(t) = t^4 - t^3 + t^2 + t - 1$.
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Evaluate each of the following indefinite integrals.

11. $\int 6x^5 - 18x^2 + 7 \, dx$	12. $\int 40x^3 + 12x^2 - 9x + 14 \, dx$
13. $\int 12t^7 - t^2 - t + 3 \, dt$	14. $\int 10w^4 + 9w^3 + 7w \, dw$
15. $\int z^6 + 4z^4 - z^2 \, dz$	16. $\int (4\sqrt{x} + \sqrt[4]{x}) \, dx$