

AP Calculus – Antiderivative Worksheet

Find $F(x)$, the general antiderivative of the function

1. $f(x) = 6x^2 - 8x + 3$

2. $f(t) = 5t^{\frac{1}{4}} - 7t^{\frac{3}{4}}$

3. $f(x) = \frac{x^4 + 3\sqrt{x}}{x^2}$

4. $f(\theta) = \cos \theta - 5 \sin \theta$

5. $f'(x) = 6x + 12x^2$

6. $f'(x) = \cos x$

Find the antiderivative F of f that satisfies the given condition.

7. $f(x) = 5x^4 - 2x^5$ $F(0) = 4$

8. $f(x) = \sqrt{x}(6 + 5x)$ $F(1) = 10$

9. $f'(x) = 24x^2 + 2x + 10$ $F(1) = 5, \quad f(1) = -3$