6.8 Indefinite Integrals

CA #1

Calculus Name: _____

Find the following indefinite integrals.

1. $\int \left(2x^2 - \frac{3}{x} + 2^x\right) dx$

2. $\int \left(\frac{x^7 - 2x}{x^2}\right) dx$

3. $\int \sqrt{x}\left(x - \sqrt[4]{x}\right) dx$

4. $\int \left(\frac{8x^2 + 2x - 3}{x}\right) dx$

5. $\int \left(\frac{1}{x} - e^x\right) dx$

6. $\int \frac{1}{x\sqrt{x}} dx$

Find the function that satisfies the given conditions.

7. $s'(t) = 8t^2 + 6t - 1$ and $s(3) = 50$

8. $\frac{dy}{dx} = 2e^x + \sin x$ and $y(0) = 2$

9. $f''(x) = 3x^2 - 8x$ and $f'(-2) = -20$ and $f(1) = 3$

Answers to 6.8 CA #1

1. $\frac{2}{3}x^3 - 3\ln\|x\| + \frac{2^x}{\ln 2} + C$	2. $\frac{1}{6}x^6 - 2\ln\|x\| + C$	3. $\frac{2}{5}x^{\frac{5}{2}} - \frac{4}{7}x^{\frac{7}{4}} + C$
4. $4x^2 + 2x - 3\ln\|x\| + C$	5. $\ln\|x\| - e^x + C$	6. $-\frac{2}{\sqrt{x}}$
7. $s(t) = \frac{8}{3}t^3 + 3t^2 - t - 46$	8. $2e^x - \cos x + 1$	9. $f(x) = \frac{1}{4}x^4 - \frac{4}{3}x^3 + 4x + \frac{1}{12}$