Names: _____   Group #: _____

Evaluate the following indefinite integrals. (*Remember: You can check your answer by differentiating.*)

1. $\displaystyle \int \left(7^x + \sqrt{x}\right) dx$

2. $\displaystyle \int \left(x + \frac{2}{x} - \frac{3}{x^3} + \frac{4}{\sqrt[4]{x}}\right) dx$

3. $\displaystyle \int \left(\sec^2(x) - \csc^2(x) + \pi\right) dx$

4. $\displaystyle \int \frac{\sin x}{\cos^2(x)} dx$

5. $\displaystyle \int 2e^{2x} dx$

Solve the following initial value problems.

6. $f'(x) = 9x^2 - 4x + 5;\ f(-1) = 0$

7. $\dfrac{dy}{dx} = \dfrac{8}{1+x^2};\ y(1) = \pi$

8. $f''(x) = -\dfrac{1}{x^2};\ f'(-1) = 2;\ f(-1) = 4$