

Name: \_\_\_\_\_

Write all of your responses on the extra paper provided. Put your name at the top of all the pages. Show all your work, answers without supporting justification will not receive credit. **Keep your answers in exact form.**

1. (10 Points Each) Find the following integrals.

(a)  $\int \frac{2x - 3}{x^3 + 3x} dx$

(d)  $\int x^3(x - 1)^{-4} dx$

(b)  $\int \frac{x^2}{\sqrt{1 - x^2}} dx$

(e)  $\int \ln(1 + x^2) dx$

(c)  $\int \frac{\cos(1/x)}{x^3} dx$

2. **Extra Credit:** (5 Points) Find the following integral.

$$\int \frac{1}{\sqrt{\sqrt{x} + 1}} dx$$