Show all your work. Due May 19th, 2017.

Name:
Student ID:

1. (**Evaulate Definite Integrals**)
   (a) $\int_{-2}^{-1} \frac{1}{x} dx$
   (b) $\int_{1}^{1} e^{x^2} dx$
   (c) $\int_{2}^{3} 12(x^2 - 5)^5 x dx$
   (d) $\int_{-5}^{10} e^{-0.05x} dx$
   (e) $\int_{2}^{5} \frac{1}{\sqrt{6-t}} dt$
   (f) $\int_{3}^{9} \frac{1}{x-1} dx$

2. (**Integration by Parts**)
   Find
   (a) $\int x e^{2x} dx$
   (b) $\int x \ln 2x dx$

3. (**Area Between Two Curves**)
   (a) Find the area bounded by $f(x) = x^2 + 1$ and $y = 0$ for $-1 \le x \le 3$.
   (b) Find the area bounded by the graphs of $f(x) = \frac{1}{2}x + 3$, $g(x) = -x^2 + 1$, $x = -2$, and $x = 1$.
   (c) Find the area bounded by $y = -x + 10$, $y = 0$ for $-2 \le x \le 2$.
   (d) Find the area bounded by $y = -\frac{1}{x}$, $y = 0$ for $1 \le x \le e$.