Professor Robert Smith?, University of Ottawa, MAT1332, Fall 2012
Assignment 1, due Thursday September 20, 5:30pm at the beginning of class.
Late assignments will not be accepted; nor will unstapled assignments.

Student Name _____ Student Number _____

By signing below, you declare that this work was your own and that you have not copied from any other individual or other source.

Signature _____

1. Calculate (a) $\int \frac{1}{3-14t}dt$ and (b) $\int_{-3}^{3}(y^7-2y^9)dy$.

   (a)

   (b)

2. Calculate (a) $\int_{-\pi}^{\pi}[x^2-30\cos(x)]dx$ and (b) $3\int_{2}^{5}\sin(3\pi(x-5)dx$. Leave your answers in exact form (not a decimal approximation).

   (a)

   (b)

3. Calculate $\int_{0}^{1}\frac{e^{\arctan x}}{1+x^2}dx$.

4. Calculate $\int_0^{\pi} x \sin(3x) dx$.

5. Zombies have invaded campus! Initially, there are 5 zombies. They recruit more of the undead to their ghoulish ranks at rate

$$\frac{dz}{dt} = 10te^{-0.08t},$$

where t is the time in days and z are the number of zombies.

(a) How many zombies are recruited in the first week?

(b) How many zombies are recruited during the third week?

(c) After 50 days, how many zombies are there in total?

(d) Will zombies eventually infect everyone on campus? If not, how many will be infected eventually?

(a)

(b)

(c)

(d)