MA 112 - Calculus II
Worksheet #1
Professor Broughton

Name:_____ Box #:_____

1. For each $f(x)$ below find an anti-derivative $F(x)$.

$f(x)$	$F(x)$
$x^4 - x^2$	
$2x^3 - 3x^2$	
$\sqrt{x}$	
$\cos(x)$	
$\sin(2x)$	
$\sin(ax)$	
e^x	
$e^x + e^{-x}$	

2. Find the following, including the constant of integration. Show the steps.

$$\int 2x^2 - x^3 dx =$$

$$\int 2\sqrt{x} - \frac{2}{\sqrt{x}} dx =$$

$$\int 4\cos(t) - 3\sin(2t) dx =$$

$$\int \frac{e^{2x} - e^{-2x}}{5} dx =$$

3. A electron of mass m, with no initial displacement or velocity is moving under a forcing function of the form

$$F(t) = 2500m\sin(100t).$$

Find the velocity and position at t = 10.