Quiz 6

Name: _____

1. For the integral below, (a) write down the corresponding differential equation, and (b) solve the integral.

$$\int \sin(4t)\,dt$$

(a) the associated DE is

$$\frac{dy}{dt} = \sin(4t)$$

(b) the antiderivative is $F(t) = \int \sin(4t)\,dt = -\frac{1}{4}\cos(4t) + C$.

2. Find an antiderivative of $f(x) = x - x^2$.

The antiderivative is

$$F(x) = \int (x - x^2)\,dx = \frac{1}{2}x^2 - \frac{1}{3}x^3 + C.$$