MATH 2554 (Calculus I)
Summer 2015

Name: _____

Fri 10 July 2015

Quiz 11: Antiderivatives ($\oint$4.8, 5.2, 5.3)

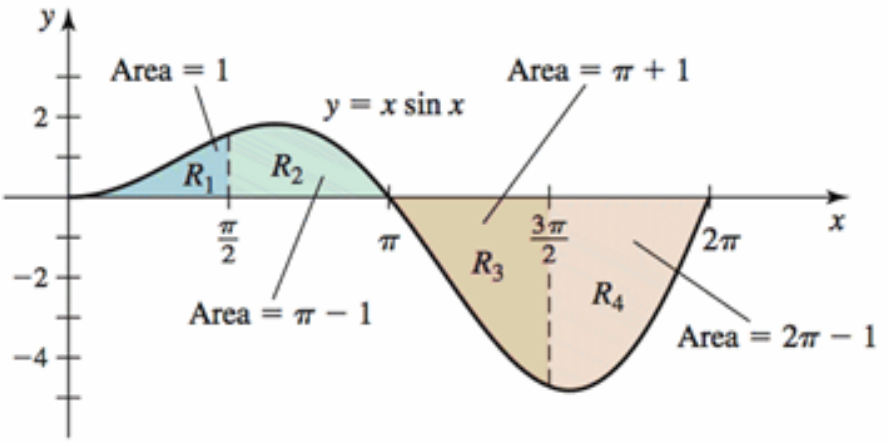
Directions: You have 30 minutes to complete this quiz. Collaborative and open book.

1. A mass oscillates up and down on the end of a spring. Find its position s relative to the equilibrium position if its acceleration is

$$a(t) = \sin(\pi t),$$

and its initial velocity and position are $v(0) = 3$ and $s(0) = 0$, respectively.

2. Use the picture to evaluate:



(a) $\int_0^{\frac{3\pi}{2}} x \sin x \; dx$

(b) $\int_{\frac{\pi}{2}}^{2\pi} x \sin x \; dx$

3. Use the Fundamental Theorem of Calculus to simplify the following expressions:

(a) $\dfrac{d}{dy} \displaystyle\int_{y^2}^{100} \frac{dw}{w^2+1}$

(b) $\dfrac{d}{dx} \displaystyle\int_1^x e^t \; dt$

4. Match the functions f whose graphs are given in (a)-(d) with the area functions

$$A(x) = \int_0^x f(t)\, dt, \quad \text{whose graphs are given in (A)-(D).}$$