due: Feb 10

Homework Set 2

Sect 6.2: Trig Integrals

Compute the following trig integrals:

1. $\int \sin^5(x)\cos^3(x)\,dx$

2. $\int \sin^3(x)\cos^6(x)\,dx$

3. $\int \cos^5(x)\,dx$

4. $\int_0^{\pi/2} \sin^2(x)\,dx$

5. $\int_0^{\pi/4} \tan^3(x)\sec^4(x)\,dx$

6. A particle moves on a straight line with velocity function $v(t) = \sin(\omega t)\cos^2(\omega t)$. Find the particle's position function $f(t)$ if $f(0) = 0$.