Homework 10, due Friday, May 2 (or before Friday, May 9)

Please turn in solutions for the following problems:

- Compute each real integral using complex integration techniques:

(1) $\displaystyle\int_{-\infty}^{\infty} \frac{1}{x^6+1}\,dx$

(2) $\displaystyle\int_{-\infty}^{\infty} \frac{x^2}{(x^2+4)(x^2+9)}\,dx$

(3) $\displaystyle\int_{-\infty}^{\infty} \frac{x\sin(x)}{x^2+4}\,dx$

(4) $\displaystyle\int_{-\infty}^{\infty} \frac{\cos(4x)}{(x^2+1)^2}\,dx$

(5) $\displaystyle\int_{-\infty}^{\infty} \frac{x^2\cos(x)}{(x^2+1)(x^2+16)}\,dx$

(6) $\displaystyle\int_{0}^{\infty} \frac{\sqrt{x}}{(x^2+1)^2}\,dx$

(7) $\displaystyle\int_{0}^{2\pi} \frac{2}{\cos(x)+2}\,dx$

(8) $\displaystyle\int_{0}^{2\pi} \frac{1}{5+4\sin(x)}\,dx$

In addition, I suggest that you work these problems from the Brown/Churchill textbook (but do not turn in):

- Page 267, problems 1, 2, 3, 4, 5, 6, 7
- Page 275-276, problems 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
- Page 286-287, problems 1, 2, 3, 4, 5, 6
- Page 290-291, problems 1, 2, 3, 4, 5, 6, 7