Homework IV

- **Section 14.3**

Integrate $\frac{z^2-4}{z^2+4}$ counterclockwise around the circle:

2) |z-1|=2
3) |z+3i|=2

Using Cauchy's integral formula(and showing the details), integrate counterclockwise (or as indicated)

6) $\oint_C \frac{e^{3z}}{3z-i} dz, C :| z |= 1$

10) $\oint_C \frac{e^z}{z-2i} dz, C :| z-2i |= 4$

12) $\oint_C \frac{\tan z}{z-i} dz,$ C the boundary of the triangle with vertices 0, -1+2i and 1+2i

- **Section 14.4**

Integrate counterclockwise around the circle |z|=2. (n is a positive integer). Show the details of your work.

2) $\frac{\sin z}{(z-i\pi/2)^4}$

4) $\frac{\cos z}{z^{2n+1}}$

Integrate around C. Show the details.

13) $\frac{e^{z/2}}{(z-a)^4},$ C the circle |z-2-i|= 3 (CCW)