Øving 10

14.3

1

$$C : |z+1| = \frac{3}{2}$$

$$\oint_C \frac{z^2}{z^2-1}dz = \oint_C \frac{z^2}{z-1}\frac{1}{z+1}dz = 2\pi i\frac{(-1)^2}{-2} = -\pi i$$

11

Singularity at $2i$ is inside curve

$$\oint_C \frac{1}{z^2+4}dz = \oint_C \frac{1}{z+2i}\frac{1}{z-2i}dz = 2\pi i\frac{1}{2i+2i} = \frac{\pi}{2}$$

13

$$\oint_C \frac{z+2}{z-2}dz = 2\pi i \cdot (2+2) = 8\pi i$$

18

$$\oint_C \frac{\sin z}{4z^2-8iz}dz = \oint_C \frac{\sin z}{4z}\frac{1}{z-2i}dz = 2\pi i\frac{\sin 2i}{4\cdot 2i} = \frac{\pi}{4}i\sinh 2$$

14.4

3

16

15.1

18

19