

Homework 14.

- 3.1 $1/2 + i$
3.3a 0
3.4 $\pi i/2$
3.17 (a) 0 (b) π
3.18 $2\pi i \sin(2\pi/6)/6 = \pi i/2\sqrt{3}$.
3.19 $16\pi i$
3.20 (a) 0 (b) $-2\pi i \times \cosh(2 \log(2)) = -17\pi i/4$.
3.22 $2\pi i \times (1/6)^3 \times (-4 \sin(2\pi/6))$
3.23 $72\pi i$
4.6 For $0 < |z| < 1$, $z^{-2} - 2z^{-1} + 3 - 4z + 5z^2 - \dots$. Residue at 0 is -2 . For $|z| > 1$: $z^{-4} - 2z^{-5} + 3z^{-6} - \dots$.
4.7 For $|z| < 1$: $2 - z + 2z^2 - z^3 + 2z^4 - \dots$. Residue = 0. For $|z| > 1$: $1 - 2z^{-1} + z^{-2} - 2z^{-3} + \dots$.
4.9 (a) regular (b) Pole of order 3 (c) Pole of order 2. (d) Pole of order 1.
4.10 (a) Regular (b) pole of order 2 (c) Pole of order 2 (d) pole of order 1