

习题4

1. (1)C; (2)C; (3)B; (4)A; (5)C.

2. $(-3, 3)$; 当 $x = 3$ 时, 发散; $x = -3$ 时, 收敛;

3. $f(x) = 1 + \sum_{n=1}^{\infty} (-1)^n \frac{2}{1-4n^2} x^{2n} \quad x \in [-1, 1]; \frac{\pi}{4} - \frac{1}{2}.$

4. 收敛.

5. (1)1;

6. $\ln(2 + \sqrt{2}).$

7. $\frac{(\ln 2)^n}{n!}.$

8. $f(x) = 1 - \frac{1}{2} \ln(1 + x^2) \quad (|x| < 1),$ 极大值为 $f(0) = 1.$

9. $f^{(n)}(0) = \frac{(-1)^{n-3} n!}{n-2}.$