

11. What are all values of x for which the series $\sum_{n=2}^{\infty} \frac{(-1)^n}{\ln n} x^n$ converges?

(A) $-e < x \leq e$

(B) $-1 \leq x < 1$

(C) $-e \leq x < e$

(D) $-1 < x \leq 1$

(E) $-1 \leq x \leq 1$

①

21. The power series $1 + 2x + 4x^2 + 8x^3 + \dots + 2^{n-1}x^{n-1} + \dots$ converges for what values of x ?

(A) $x = 0$ only (B) $-\frac{1}{2} < x < \frac{1}{2}$ only (C) $-1 < x < 1$ only

(D) $-2 < x < 2$ only (E) All real numbers x

②

22. The Taylor series for $\frac{\sin(x^2)}{x^2}$ centered at $x = 0$ is

(A) $\sum_{k=0}^{\infty} \frac{(-1)^k x^{2k+1}}{(2k+1)!}$

(B) $\sum_{k=0}^{\infty} \frac{(-1)^k x^{2k}}{(2k+1)!}$

(C) $\sum_{k=0}^{\infty} \frac{(-1)^k x^{2k+1}}{(2k)!}$

(D) $\sum_{k=0}^{\infty} \frac{(-1)^k x^{4k}}{(2k+1)!}$

(E) $\frac{1}{x} + \sum_{k=1}^{\infty} \frac{(-1)^k x^{2k-1}}{(2k-1)!}$

③