

Lab quiz 11

1. The radius of convergence of the power series $\sum_{n=1}^{\infty} \frac{(x-3)^n}{n^n}$ is:
- (A) 0
 - (B) 1
 - (C) 3
 - (D) ∞
 - (E) None of the above

2. Interval of convergence of the power series $\sum_{n=1}^{\infty} \frac{(-1)^n (x-5)^n}{4^n n}$ is:

- (A) $[1, 9]$
- (B) $[1, 9)$
- (C) $(1, 9]$
- (D) $(1, 9)$
- (E) None of the above

3. The Taylor series in x for $f(x) = x^2 \ln(1+x)$ is

(A) $\sum \frac{(-1)^{n+1} x^{n+2}}{n!}$

(B) $\sum \frac{(-1)^{n+1} x^{n+1}}{n}$

(C) $\sum \frac{(-1)^{n+1} x^{n+2}}{n}$

(D) $\sum \frac{(-1)^{n+1} x^{n+1}}{n!}$

(E) $\sum \frac{(-1)^{n+1} x^{n+2}}{(n+1)!}$

4. Write following function as a power series using sigma notation: $f(x) = \frac{6}{1+6x}$

(A) $\sum 6^{k+1}x^k$, if $|6x| < 1$

(B) $\sum (-1)^k 6^{k+1}x^k$, if $|6x| < 1$

(C) $\sum (-1)^k 6^k x^k$, if $|6x| < 1$

(D) $\sum 6^{k+1}x^k$, if $|6x| < 1$

(E) $\sum (-1)^k 6x^k$, if $|6x| < 1$

[Extra, not in lab quiz: Using the above problem write the power series for $g(x) = \ln(1 + 6x)$]

5. Using the Taylor polynomial for $f(x) = x^2 \cos(2x)$ centered at $x = 0$ the $f^4(0)$ is:

- (A) 0
- (B) 24
- (C) -24
- (D) 48
- (E) -48