

## 10.14 Finding Taylor or Maclaurin Series

CA #2

Calculus

Name: \_\_\_\_\_

- What is the coefficient of  $x^{10}$  in the Taylor Series about  $x = 0$  for the function  $f(x) = \frac{e^{x^2}}{2}$ ?
- Write the first four non-zero terms for the Taylor Series for the function  $f(x) = \frac{x \cos x}{2}$  about  $x = 0$ ?
- What is the sum of the series  $3 - \frac{3^3}{3!} + \frac{3^5}{5!} - \frac{3^7}{7!} + \dots + \frac{(-1)^n 3^{2n+1}}{(2n+1)!}$  ?  
  
 (A)  $\ln 3$                       (B)  $e^3$                       (C)  $\sin 3$                       (D)  $\cos 3$

- Write the first four non-zero terms in the Maclaurin Series for the function  $f(x) = xe^{2x}$ .
- Which of the following is the Maclaurin Series for the function  $f$  defined by  $f(x) = 1 + x^2 + \sin x$  ?

- (A)  $1 + x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots$                       (B)  $1 + x^2 - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots$
- (C)  $1 - x + x^2 - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots$                       (D)  $1 + x + x^2 - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots$

1. $\frac{1}{240}$	2. $\frac{x}{2} - \frac{x^3}{48} + \frac{x^5}{720} - \frac{x^7}{48}$	3. C	4. $x + 2x^2 + 2x^3 + \frac{3}{4x^4}$	5. D
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## Answers to 10.14 CA #2

1. $\frac{1}{240}$	2. $\frac{x}{2} - \frac{x^3}{4} + \frac{x^5}{48} - \frac{x^7}{720}$	3. C	4. $x + 2x^2 + 2x^3 + \frac{4x^4}{3}$	5. D
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