10.14 Finding Taylor or Maclaurin Series

Calculus Name: _____ **CA #1**

1. What is the coefficient of x^6 in the Taylor Series about $x = 0$ for the function $f(x) = \frac{e^{3x^2}}{4}$?

2. Write the first four non-zero terms for the Taylor Series for the function $f(x) = 2x\cos x$ about $x = 0$?

3. What is the sum of the series $1 - \frac{3^2}{2!} + \frac{3^4}{4!} - \frac{3^6}{6!} + \cdots + \frac{(-1)^n 3^{2n}}{(2n)!}$?

(A) $\ln 3$ (B) e^3 (C) $\sin 3$ (D) $\cos 3$

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4. Write the first four non-zero terms in the Maclaurin Series for the function $f(x) = x\sin 2x$.

5. Which of the following is the Maclaurin Series for the function f defined by $f(x) = 1 + x^2 + \cos x$?

(A) $2 + \frac{x^2}{2} + \frac{x^4}{24} + \cdots$ (B) $2 + \frac{3x^2}{2} + \frac{x^4}{24} + \cdots$ (C) $1 + x + x^2 - \frac{x^3}{6} + \cdots$ (D) $2 + x + \frac{3x^2}{2} + \frac{x^3}{6} + \cdots$

Answers to 10.14 CA #1

1. $\frac{9}{8}$	2. $2x - x^3 + \frac{x^5}{12} - \frac{x^7}{360}$	3. D	4. $2x^2 - \frac{2^3x^4}{3!} + \frac{2^5x^6}{5!} - \frac{2^7x^8}{7!}$	5. A