Name: _____

Instructor: _____

Math 10560, Quiz 10 Tutorial
April 18, 2017

- The Honor Code is in effect for this quiz. All work is to be your own.
- No calculators.
- The quiz lasts for 25 Minutes .
- Be sure that your name is on every page in case pages become detached.
- Be sure that you have all 6 pages of the test.

PLEASE MARK YOUR ANSWERS WITH AN X, not a circle!

1.	(a)	(b)	(c)	(d)	(e)
2.	(a)	(b)	(c)	(d)	(e)
3.	(a)	(b)	(c)	(d)	(e)
4.	(a)	(b)	(c)	(d)	(e)
5.	(a)	(b)	(c)	(d)	(e)

Name: _____

Instructor: _____

Multiple Choice

1.(2 pts) Find a power series representation for $\ln(1-x)$ centered at 0.

(a) $\displaystyle\sum_{n=0}^{\infty} \frac{-x^{n+1}}{n+1}$

(b) $\displaystyle\sum_{n=0}^{\infty} \frac{x^{n+1}}{n+1}$

(c) $\displaystyle\sum_{n=0}^{\infty} \frac{x^{n}}{n!}$

(d) $\displaystyle\sum_{n=0}^{\infty} nx^{n-1}$

(e) $\displaystyle\sum_{n=0}^{\infty} (-1)^{n+1}\frac{x^{n+1}}{n+1}$

2.(2 pts) Which of the following values is equal to $\displaystyle\sum_{n=0}^{\infty} 2\frac{(-1)^n 3^{2n+1}}{(2n+1)!}$?

(a) $2e^3$ (b) $2\cos(3)$ (c) $\cos(6)$

(d) $\sin(6)$ (e) $2\sin(3)$

Name: _____

Instructor: _____

3.(2 pts) Which of the following power series is equal to the indefinite integral $\int e^{-x^2} dx$?

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

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

(c) $C + \sum_{n=0}^{\infty} \frac{x^{2n+1}}{2n+1}$

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

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

4.(2 pts) Which of the following is the first few terms of the Maclaurin series (Taylor series at $a = 0$) for

$$\int \frac{\cos(x^2) - 1}{x}\, dx \ ?$$

(a) $C - \frac{x^4}{2! \cdot 4} + \frac{x^8}{4! \cdot 8} - \frac{x^{12}}{6! \cdot 12} + \cdots$

(b) $C - \frac{x^5}{2! \cdot 5} + \frac{x^9}{4! \cdot 9} - \frac{x^{13}}{6! \cdot 13} + \cdots$

(c) $C - \frac{x^4}{2!} + \frac{x^8}{4!} - \frac{x^{12}}{6!} + \cdots$

(d) $C - \frac{x^3}{2!} + \frac{x^7}{4!} - \frac{x^{11}}{6!} + \cdots$

(e) $C - \frac{x^2}{2} + \frac{x^4}{4!} - \frac{x^6}{6!} + \cdots$

Name: _____

Instructor: _____

5.(2 pts) Find

$$\lim_{x \to 0} \frac{e^{3x^6} - 1 - 3x^6}{x^{12}}.$$

(a) 9

(b) $\frac{3}{2}$

(c) The limit does not exist

(d) $\frac{9}{2}$

(e) 0