Name: _____

Instructor: _____

Math 10560, Quiz 2 Tutorial
January 31, 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 4 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.(6 pts) The function $f(x) = e^{2x} + x^3 + x$ is one-to-one (there is no need to check this). What is $(f^{-1})'(2 + e^2)$?

(a) $\dfrac{1}{2e^4 + 13}$ (b) $-\dfrac{1}{2e^2 + 4}$ (c) $2e^2 + 4$

(d) $\dfrac{1}{2e^2 + 4}$ (e) $\dfrac{1}{4}$

2.(6 pts) Compute the following definite integal.

$$\int_0^{\log_5(6)} \frac{5^x}{\sqrt{1 + 5^x}} dx \ .$$

(a) $\dfrac{\sqrt{7} - \sqrt{2}}{\ln(5)}$ (b) $2(\sqrt{7} - \sqrt{2})$

(c) $\dfrac{2(\sqrt{6} - \sqrt{2})}{\ln(5)}$ (d) $2\sqrt{6} - 2$

(e) $\dfrac{2(\sqrt{7} - \sqrt{2})}{\ln(5)}$

Name: _____

Instructor: _____

3.(6 pts) Compute the integral

$$\int_{\ln(\pi/4)}^{\ln(\pi/2)} e^x \cos(e^x) dx.$$

(a) $\dfrac{1}{\sqrt{2}}$ (b) $\dfrac{1}{\sqrt{2}} - 1$ (c) $\dfrac{\sqrt{3}}{2} - 1$

(d) $1 - \dfrac{\sqrt{3}}{2}$ (e) $1 - \dfrac{1}{\sqrt{2}}$

4.(6 pts) The derivative of $x^{\ln x}$ is equal to

(a) $(\ln x)(x^{\ln x - 1})$ (b) $\dfrac{2 \ln x}{x}\, x^{\ln x}$ (c) $x^{\ln x} \ln(\ln x)$

(d) $\dfrac{x^{\ln x}}{x \ln x}$ (e) 0

Name: _____

Instructor: _____

5.(6 pts) Solve the following equation for x.

$$7^x 5^x = 5\, e^2 \ .$$

(a) $x = \dfrac{2}{\ln 35}$

(b) $x = \dfrac{\ln 5 + 2}{\ln 12}$

(c) $x = \dfrac{\ln 5 + 2}{\ln 35}$

(d) There is no solution.

(e) $x = \dfrac{2 \ln 7}{\ln 35}$

The following is the list of useful trigonometric formulas:

$$\sin^2 x + \cos^2 x = 1$$

$$1 + \tan^2 x = \sec^2 x$$

$$\sin^2 x = \frac{1}{2}(1 - \cos 2x)$$

$$\cos^2 x = \frac{1}{2}(1 + \cos 2x)$$

$$\sin 2x = 2 \sin x \cos x$$

$$\sin x \cos y = \frac{1}{2}\big(\sin(x - y) + \sin(x + y)\big)$$

$$\sin x \sin y = \frac{1}{2}\big(\cos(x - y) - \cos(x + y)\big)$$

$$\cos x \cos y = \frac{1}{2}\big(\cos(x - y) + \cos(x + y)\big)$$

$$\int \sec\theta = \ln|\sec\theta + \tan\theta| + C$$