| Calculus II | Name: |
| Study Guide 2 | Class: |
| Due Date: | Score: |

**No Work $\Leftrightarrow$ No Points**

**Use Pencil Only $\Leftrightarrow$ Be Neat & Organized**

**1. (3 points) Find the inverse of $f(x) = \dfrac{4x - 1}{2x + 3}$.**

1. _____

**2. (4 points) Find the inverse of $f(x) = x^2 - 4x$, $x \geq 2$.**

2. _____

**3. (3 points) Find the inverse of $f(x) = \sqrt[3]{1 - x^3}$.**

3. _____

**4. (4 points) Find** $(f^{-1})'(2)$ **for** $f(x) = \sqrt{x-2}.$

4. _____

**5. (5 points) Find** $(f^{-1})'(3)$ **for** $f(x) = 3 + x^2 + \tan(\pi x/2), \ -1 < x < 1.$

5. _____

**6. (5 points) Find** $(f^{-1})'(2)$ **for** $f(x) = \sqrt{x^3 + x^2 + x + 1}.$

6. _____

**7. (4 points)** Find $(f^{-1})'(0)$ for $f(x) = \int_3^x \sqrt{1+t^3}\, dt$.

7. _____

**8. Find** $f'(x)$ **for**

    **(a) (3 points)** $f(x) = \dfrac{e^x}{1-e^x}$

(a) _____

    **(b) (3 points)** $f(x) = \sin(e^{x^2} + 2)$

(b) _____

    **(c) (4 points)** $f(x) = \tan(x - \sqrt{e^x})$

(c) _____

**9. Evaluate the following integrals.**

(a) **(2 points)** $\displaystyle\int_{-2}^{2} e\,dx$

(a) _____

(b) **(3 points)** $\displaystyle\int e^x(4+e^x)^5\,dx$

(b) _____

(c) **(4 points)** $\displaystyle\int \frac{\sqrt{1+e^{-x}}}{e^x}\,dx$

(c) _____

(d) **(2 points)** $\displaystyle\int (\sin^2 e^x + \cos^2 e^x)\,dx$

(d) _____

Study Guide 2 Total Points: 49