Name: _____

VIP ID: _____

- Write your name and VIP ID in the space provided above.

- The test has three (3) pages, including this one.

- Credit for each problem is given in parentheses at the right of the problem number.

- No books, notes or scratch paper may be used on this test.

- An approved calculator may be used on this test.

Problem 1 (10 pts each). Compute the antiderivative of the following functions:

$$\int (5 + 2x - 3x^6)\, dx$$

$$\int \left(3^z + 5 \cdot 6^z + 6e^z\right) dz$$

$$\int \left(\frac{3}{x} - \frac{5}{3x^2} - \frac{4}{\sqrt{x}}\right) dx$$

$$\int (x^3 - 10)^2\, dx$$

$$\int \frac{w^2 + 3w}{w^4}\, dw$$

Problem 2 (10 pts each). Compute the antiderivative of the following functions:

$$\int x^5(5 - 3x^6)^{12}\, dx$$

$$\int 6xe^{x^2}\, dx$$

$$\int \frac{3x^2}{(8x^3 - 5)^3}\, dx$$

$$\int 3 \cdot 2^{5x}\, dx$$

Problem 3 (10 pts). Find the antiderivative $F(x)$ of the function $f(x) = e^{2x} - 5x^3$ that satisfies $F(0) = 23/2$.