

WRITE YOUR NAME:

MAC 2313 Quiz 14
Tuesday March 12th

Evaluate the integral.

$$\int_1^2 \int_0^1 (3x^2 + 4y^3) dy dx$$

$$\int_1^2 \left(\int_{y=0}^{y=1} (3x^2 + 4y^3) dy \right) dx$$

y is "the" variable, x is constant

$$= \int_1^2 \left[3x^2 y + y^4 \right]_{y=0}^{y=1} dx$$

$$= \int_1^2 (3x^2 + 1) dx = \left[x^3 + x \right]_1^2$$

$$= \left[x^3 \right]_1^2 + \left[x \right]_1^2$$

$$= 8 - 1 + 2 - 1 = 7 + 1 = \boxed{8}$$