Math 1B
Quiz 1
Fri Jan 11, 2008

Name: PURPLE + YELLOW
Code from Greensheet Take Home Quiz:
(month * day * year of birth) _____

[3 POINTS] Translate into summation notation. **YOU DO NOT NEED TO COMPUTE THE SUM.**

"The cube of the sum of the first 100 positive even integers"

$$\left(\sum_{i=1}^{100} 2i\right)^3$$

[7 POINTS] Use summation rules/shortcuts to compute the sum $\sum_{i=1}^{100}(4-i-3i^2)$.

$$4(100) - \frac{100(101)}{2} - 3\cdot\frac{100(101)(201)}{6}$$

$$= -1019700$$

[QUESTIONS ON THE OTHER SIDE]

[10 POINTS] Use summation rules/shortcuts to compute the sum of the form $\sum_{i=1}^{n} f(x_i)\Delta x$ for

$f(x) = x^2 + 3x; \quad x = 4.1, 4.2, 4.3, \ldots, 5.0; \quad \Delta x = 0.1; \quad n = 10$

$$x_i = 4 + \frac{i}{10}$$

$$\sum_{i=1}^{10} f\left(4 + \frac{i}{10}\right) 0.1$$

$$= 0.1 \sum_{i=1}^{10} \left[\left(4 + \frac{i}{10}\right)^2 + 3\left(4 + \frac{i}{10}\right)\right]$$

$$= 0.1 \sum_{i=1}^{10} \left(16 + \frac{4i}{5} + \frac{i^2}{100} + 12 + \frac{3i}{10}\right)$$

$$= 0.1 \sum_{i=1}^{10} \left(28 + \frac{11i}{10} + \frac{i^2}{100}\right)$$

$$= 0.1 \left(28(10) + \frac{11}{10}\frac{10(11)}{2} + \frac{1}{100}\frac{10(11)(21)}{6}\right)$$

$$= 34.435$$

[QUESTIONS ON THE OTHER SIDE]