Math 1B
Quiz 1
Fri Jan 11, 2008

Name: WHITE + PINK

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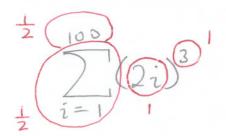(month * day * year of birth) _____

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

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

$$\frac{1}{2}\sum_{i=1}^{100}(2i)^3 \quad \frac{1}{2}$$

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

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

$$= -353100$$

[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

$$f(x) = x^2 + 2x; \qquad x = 3.1, 3.2, 3.3, \ldots, 4.0; \qquad \Delta x = 0.1; \qquad n = 10$$

$$x_i = 3 + \frac{i}{10}$$

$$\sum_{i=1}^{10} f\left(3 + \frac{i}{10}\right) 0.1$$

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

$$= 0.1 \sum_{i=1}^{10} \left(9 + \frac{3i}{5} + \frac{i^2}{100} + 6 + \frac{i}{5}\right)$$

$$= 0.1 \sum_{i=1}^{10} \left(15 + \frac{4i}{5} + \frac{i^2}{100}\right)$$

$$= 0.1 \left(15(10) + \frac{4}{5}\frac{10(11)}{2} + \frac{1}{100}\frac{10(11)(21)}{6}\right)$$

$$= 19.785$$