1) Endare

$$\int_1^2 \frac{\Delta x}{2}\Big[\left(4-(1)^2\right)+2\left(4-(1.125)^2\right)+2\left(4-(1.25)^2\right)+2\left(4-(1.375)^2\right)$$

$$+2\left(4-(1.5)^2\right)+2\left(4-(1.685)^2\right)+2\left(4-(1.75)^2\right)+\left(4-(1.875)^2\right)\Big]$$

$$\frac{1}{16}\left[1.664\right]$$

Simpson

$$\frac{1}{24}\Big[\left(4-(1)^2\right)\cdot 4\left(4-(1.125)^2\right)+2\left(4-(1.25)\right)+4\left(4-(1.375)^2\right)$$

$$+2\left(4-(1.5)^2\right)+4\left(4-(1.685)^2\right)+2\left(4-(1.75)^2\right)+\left(4-(1.875)^2\right)\Big]$$

$$=1.653$$

2)

$$\lim_{n\to\infty}\sum_{i=1}^{n}\left[\left(\frac{4i}{n}-1\right)^2+2\left(\frac{4i}{n}-1\right)+3\right]\frac{4}{n}$$

$$\frac{16i^2}{n^2}-\frac{8i}{n}+1+\frac{8i}{n}-2+3$$

$$\lim_{n\to\infty}\left[\frac{4}{n}\sum_{i=1}\left(\frac{16i^2}{n^2}+2\right)\right]$$

$$\lim_{n\to\infty}\frac{4}{n}\left[\sum_{i=1}\frac{16i^2}{n^2}+\sum_{i=1}2\right]=\lim_{n\to\infty}\frac{4}{n}\cdot\left[\frac{16}{n^2}\sum_{i=1}i+2n\right]$$