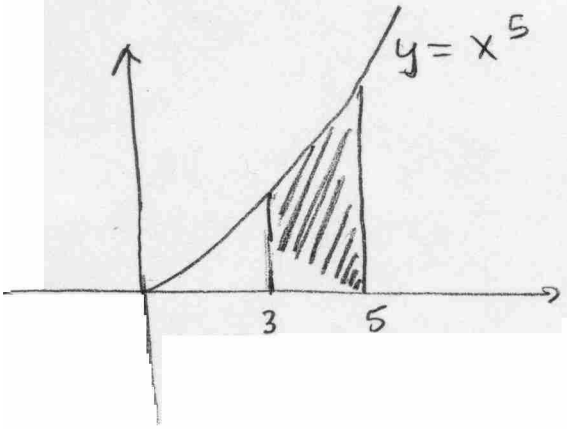
5. Sketch a region whose area is equal to $\lim_{n\to\infty}\sum_{i=0}^{n}\frac{2}{n}\left(3+\frac{2i}{n}\right)^5$. Label the region's boundaries. **Do not find the area.**



$\Delta x = \frac{b-a}{n} = \frac{2}{n}$

$f(x_i) = x^5$

$x_i = a + i\Delta x$

$= 3 + \frac{2i}{n} \Rightarrow a = 3$

$b - a = 2 \Rightarrow b = 5$

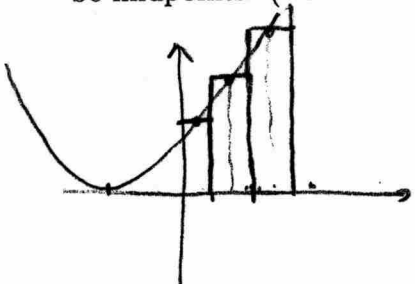
7 pts

6. Express $\lim_{n\to\infty}\sum_{i=0}^{n} x_i\sqrt{1+x_i}\,\Delta x$ as a definite integral on the interval $2, 3]$. **Do not evaluate the integral.**

7 pts

$$\int_{-2}^{3} x\sqrt{1+x}\,dx$$

7. If $f(x) = (x+2)^2$, $0 \le x \le 3$, find the Riemann sum with $n = 3$, taking the sample points to be midpoints. (You *do not* need to do arithmetic of fractions to simplify your answer.)



8 pts

$f(\frac{1}{2})\cdot 1 + f(\frac{3}{2})\cdot 1 + f(\frac{5}{2})\cdot 1$

$= (\frac{5}{2})^2 + (\frac{7}{2})^2 + (\frac{9}{2})^2$