1. The following parts will lead to approximating the integral

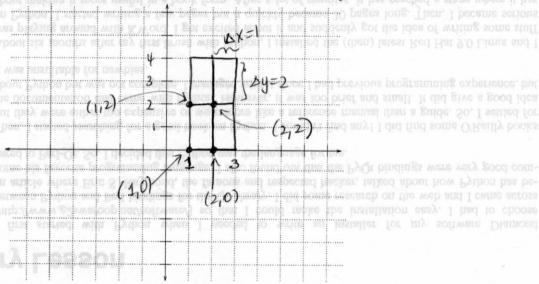
by a double Riemann sum.
$$\int_0^4 \int_1^3 xy \, dx \, dy \implies l \leq x \leq 3$$

(a) [4 points] Let m = 2 and n = 2. What are Δx and Δy ?

In the
$$\sqrt{3}$$
 A = 1 of $\sqrt{\frac{5}{120}}$ of $\sqrt{\frac{5}{1100}}$ received lots of constructive suggestions, criticisms and feedback from entities stic reachs which has helped me improve this book a lot.

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(b) [6 points] Sketch the region of integration below and divide it into the appropriate number of subrectangles, each having dimensions Δx by Δy . For each subrectangle, find the coordinates of the lower left corner and lable them on your sketch.



(c) [10 points] Use the lower left corners to estimate the above double integral by a double Riemann sum.

Riemann sum.
$$\int_0^4 \int_1^3 \underline{xy} \, dx \, dy \approx \underbrace{2}_{i=0}^2 \underbrace{2}_{j=0}^2 f(x_{ij}^*, y_{ij}^*) \Delta \times \Delta y$$

$$f(x,y)=xy = f(1,0)(1\chi 2) + f(2,0)(1\chi 2) + f(1,2\chi 1\chi 2) + f(2,2)(1)(2)$$

$$= 0 + 0 + 4 + 8 = 12$$