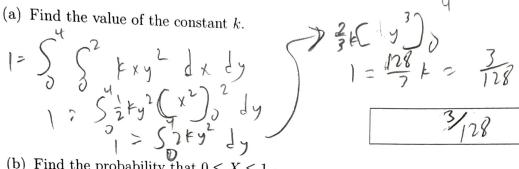
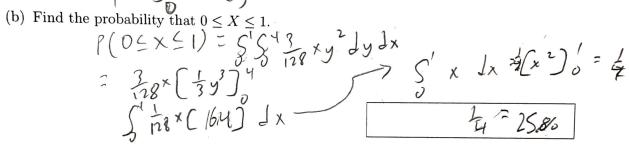
4. Suppose X and Y are continuously distributed with joint pdf

$$f(x,y) = \begin{cases} kxy^2 & \text{if } 0 \le x \le 2 \text{ and } 0 \le y \le 4\\ 0 & \text{otherwise} \end{cases}$$

where k is an unknown constant.

(a) Find the value of the constant k.





- (c) Calculate the marginal probability distributions.

$$\int_{0}^{43} \frac{3}{128} \times y^{2} dy = \frac{1}{2} \times \frac{1}{128} \times y^{2} dx = \frac{3}{64} y^{2}$$

- Sylvand V indexes in a probability distributions. $\begin{cases}
 \frac{3}{128} \times y^2 & \text{if } 0.4 \times 2 \\
 y & = \frac{1}{2} \times y
 \end{cases}$ $\begin{cases}
 \frac{1}{2} \times |f 0.4 \times 2| \\
 f(x)| | (\frac{3}{6} \times y^2)| | (\frac{3}{6} \times y^2)|$

(d) Are X and Y independent?
$$f(x,y) = \frac{3}{128} xy^{2}$$

$$(1x)(\frac{3}{2} x^{2})$$

(e) Find the expected value of
$$X + Y$$
.
 $F(X + Y) = F(X) - F(Y)$

