

## Definition

For the discrete random variables  $X$  and  $Y$  with joint pmf  $f(x, y)$ , the marginal pmf's for  $X$  and  $Y$  are

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$$f_X(x) = \sum_y f(x, y) \quad \text{and} \quad f_Y(y) = \sum_x f(x, y)$$

which are defined over the appropriate supports. For the continuous random variables  $X$  and  $Y$  with joint pdf  $f(x, y)$ , the marginal pdf's for  $X$  and  $Y$  are

$$f_X(x) = \int_{-\infty}^{\infty} f(x, y) dy \quad \text{and} \quad f_Y(y) = \int_{-\infty}^{\infty} f(x, y) dx$$

which are defined over the appropriate supports.