1. Bilinear interpolation is used to define a surface \( p(\alpha, \beta) \) from four points \( x, y, z, w \) in \( \mathbb{R}^2 \). E.g., \( p(0,0) = x \) and \( p(0,1) = w \).

(a) Draw and label on the figure above the approximate locations of the following points \( a, b, c \). (If necessary, first re-draw the figure on your answer sheet.)

- \( a = p(\frac{9}{10}, 1) \),
- \( b = p(\frac{3}{4}, \frac{1}{2}) \),
- \( c = p(\frac{1}{5}, \frac{7}{8}) \).

(b) Now suppose \( x = (1, 0, 1) \) and \( y = (3, 0, -2) \) and \( z = (3, 2, 4) \) and \( w = (1, 2, 1) \). Explicitly give the point \( b \) (as a 3-tuple).