Dear Student,

This is the same example as $f_{xy}(x, y) = K(2x + y)$, but pdf is shifted such that mean values of marginal densities are zero. And covariance of X and Y is denoted by Cov_{XY}:

$$Cov_{XY} = \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} (x-\mu_X)(y-\mu_Y)\, f_{XY}(x,y)\, dx\, dy$$

Here $f_{xy}(x, y)$ would be replaced by $2(x - 55/9) + (y - 50/9)$ for $x \, \varepsilon \, [-55/9, 35/9]$ and $y \, \varepsilon \, [-50/9, 40/9]$. Hence the expression for covariance becomes:

$$Cov_{XY} = \int_{-50/9}^{40/9} \int_{-55/9}^{35/9} (x-0)\,(y-0) \left(\frac{2*\left(x-\frac{55}{9}\right)+\left(y-\frac{50}{9}\right)}{1500} \right) dx\, dy$$