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 $\text{Cov}_{XY}$:

$$\text{Cov}_{XY} = \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} (x-\mu_x) (y-\mu_y) f_{xy}(x,y) \, dx \, dy$$

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

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