

$$\boxed{d} \quad \text{Cov}(X, Y) = a \sigma_x^2 \quad \text{from (a) and (c)}$$

$$\Rightarrow \rho \sigma_x \sigma_y = a \sigma_x^2$$

$$\Rightarrow \boxed{a = \rho \frac{\sigma_y}{\sigma_x}}$$

$$\mu_y = a \mu_x + b \quad \text{from (b)}$$

$$\Rightarrow \mu_y = \rho \frac{\sigma_y}{\sigma_x} \mu_x + b$$

$$\Rightarrow \boxed{b = \mu_y - \rho \frac{\sigma_y}{\sigma_x} \mu_x}$$