$$\text{Cov}(X, Y) = E(XY) - E(X)E(Y)$$

$$= \frac{7}{20} - \left(\frac{3}{5}\right)\left(\frac{12}{20}\right)$$

$$= \frac{7}{20} - \frac{36}{100} = \frac{35}{100} - \frac{36}{100}$$

$$\text{Cov}(X, Y) = \frac{-1}{100}$$

$$\text{Cov}(X, Y) = \frac{\text{Cov}(X, Y)}{\sigma_X \sigma_Y} = \frac{\frac{-1}{100}}{\left(\frac{1}{5}\sqrt{\frac{11}{6}}\right)\left(\frac{1}{5}\sqrt{2}\right)}$$

$$= \left(\frac{-1}{100}\right)\left(\frac{5}{\sqrt{\frac{11}{6}}}\right)\left(\frac{5}{\sqrt{2}}\right) = -\frac{1}{4}\left(\frac{1}{\sqrt{\frac{11}{3}}}\right) = -\frac{\sqrt{3}}{4\sqrt{11}}$$

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