

# 12.13.3.12

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If X is the number of tails in three tosses of coin, determine the standard deviation of X.

**Solution:**

Let

$$n = \text{Number of trails} \quad (1)$$

$$p = \text{Probability of getting tails in a toss} \quad (2)$$

$$= \frac{1}{2} \quad (3)$$

$$q = \text{Probability of not getting tails} \quad (4)$$

$$= 1 - p \quad (5)$$

$$= \frac{1}{2} \quad (6)$$

$$\sigma_x = \sqrt{np(1-p)} \quad (7)$$

$$= \sqrt{\frac{3}{4}} \quad (8)$$