

Nama : Ahsin Apri Aenul Yaqin

NIM : 5180411265

prog : Informatika

1.

Jawaban

$k_1 = 5$ baju

$k_2 = 2$ celana

$k_3 = 2$ topi

$k_4 = 3$ dasi

$k_5 = 4$ sepatu

$$k_1 \times k_2 \times k_3 \times k_4 \times k_5$$

$$5 \times 2 \times 2 \times 3 \times 4 = 240 \text{ cara}$$

2.

$$a. C_2^8 = \frac{8!}{2!(8-2)!} = \frac{8 \cdot 7 \cdot 6!}{2! \cdot 6!} = 28$$

$$C_1^5 \times C_1^3 = \frac{5!}{1!(5-1)!} \times \frac{3!}{1!(3-1)!} = \frac{5 \cdot 4!}{1! \cdot 4!} \times \frac{3 \cdot 2!}{1! \cdot 2!} = 15$$

$$9 = \frac{28}{15}$$

$$b. C_2^8 = \frac{8!}{2!(8-2)!} = \frac{8 \cdot 7 \cdot 6!}{2! \cdot 6!} = 28$$

$$C_1^5 \times C_1^4 = \frac{5!}{1!(5-1)!} \times \frac{4!}{1!(4-1)!} = \frac{5 \cdot 4!}{1! \cdot 4!} \times \frac{4 \cdot 3!}{1! \cdot 3!} = 20 \text{ Cara}$$

3.

a. Setiap bola yang diambil dimasukkan kembali ke dalam kotak

$$\left. \begin{array}{l} \text{merah} = 6 \\ \text{putih} = 4 \\ \text{biru} = 5 \end{array} \right\} 15$$

m : kejadian pertama bola merah

B : kejadian kedua bola biru

B : kejadian ketiga bola biru

$$\begin{aligned} a. P(m \cap B \cap B) &= P(m) P(B) P(B) = \frac{6}{15} \times \frac{5}{15} \times \frac{5}{15} \\ &= \frac{150}{3375} \end{aligned}$$

b. Setiap bola yang diambil tidak dimasukkan kembali ke dalam kotak

$$\begin{aligned} b. P(m \cap B \cap B) &= P(m) P(B) P(B) = \frac{6}{15} \times \frac{5}{14} \times \frac{4}{13} \\ &= \frac{120}{2370} \end{aligned}$$

4.

a. Tidak ada

b. Ada 2 orang

$$p(x) = P(X=x) = \frac{e^{-\lambda} \lambda^x}{x!}$$

$$a. P(0) = \frac{e^{-2} 2^0}{0!} = 0.1353$$

$$b. x = 2$$



$$P(2) = \frac{e^{-2} 2^2}{2!} = 0,2706$$

5. Sampel acak sebanyak 8000 barang berisi kurang dari 7 yang cacat?

$$P(X \leq 7) = \sum_{x=0}^6 b(x; 8000, 0.001) = \sum_{x=0}^6 P(X; 8)$$

$$= 0.3139$$

6. Tentukan probabilitas dimana 2 dari 4 komponen yang selanjutnya diuji akan dinyatakan layak! rumus:

$$P(X=x) \binom{n}{x} p^x q^{n-x} \quad x = 0, 1, 2, 3$$

$$p = 0.75 = \frac{3}{4}$$

$$q = 1 - \frac{3}{4} = \frac{1}{4}$$

$$x = 2$$

$$n = 4$$

$$P(X=2) = \binom{4}{2} \left(\frac{3}{4}\right)^2 \left(\frac{1}{4}\right)^{4-2}$$

$$= 6 \cdot \frac{6}{16} \cdot \frac{1}{16} = \frac{27}{128}$$

7. a. < 200 mg %

b. Antara 200 - 275 mg %

Diketahui:

$$x = 200 \text{ mg \%}$$

$$x_2 = 275 \text{ mg \%}$$

$$\mu = 215 \text{ mg \%}$$

$$\sigma = 45 \text{ mg \%}$$

$$a. z = \frac{x - \mu}{\sigma} = \frac{200 - 215}{45} = -0,33 = 0,3707$$

$$\text{Jadi: } p(x < 200 \text{ mg}\%) = 0,5 - 0,3707 = 0,1293$$

$$b. z = \frac{x - \mu}{\sigma} = \frac{275 - 215}{45} = 1,33 = 0,9082$$

$$\text{Jadi: } p(200 \text{ mg}\% < 275 \text{ mg}\%) = 0,3707 + 0,9082 = 1,2789$$

8. Yang Diketahui

$$\mu = 70$$

$$\sigma = 20$$

$$x_1 = 50$$

$$x_2 = 68$$

Batas bawah

$$z = \frac{x - \mu}{\sigma} = \frac{50 - 70}{20} = \frac{-20}{20} = -1 = 0,1587$$

Batas atas

$$z = \frac{x - \mu}{\sigma} = \frac{68 - 70}{20} = \frac{-2}{20} = -0,1 = 0,4562$$

$$\begin{aligned} p(50 < x < 68) &= p(-1 < z < -0,1) \\ &= p(z < -0,1) - p(z < -1) \\ &= 0,1587 - 0,4562 \\ &= 0,2975 \end{aligned}$$

