$$P(X=k)=\frac{\binom{K}{k}\binom{N-K}{n-k}}{\binom{N}{n}}$$

💠 JAWABAN LAPORAN PRAKTIKUM (Kasus 1 & Kasus 2)

(Bagian ini khusus untuk laporan sesuai langkah-langkah praktikum)

🔷 Kasus 1 – Distribusi Hipergeometrik dengan data percobaan

Diketahui pengambilan 4 bola dari populasi 10 bola (3 kuning & 7 bukan kuning).
Populasi:

- N = 10
- K = 3 (bola kuning)
- n = 4 (pengambilan)

Maka peluang X = 0,1,2,3 bola kuning terambil:

1. P(X=0)

$$P(0)=\frac{\binom{3}{0}\binom{7}{4}}{\binom{10}{4}}=\frac{1\cdot 35}{210}=0.1667$$

2. P(X=1)

$$P(1)=\frac{\binom{3}{1}\binom{7}{3}}{210}=\frac{3\cdot 35}{210}=0.4286$$

3. P(X=2)

$$P(2) = \frac{\binom{3}{2}\binom{7}{2}}{210} = \frac{3 \cdot 21}{210} = 0.3000$$

4. P(X=3)

$$P(3) = \frac{\binom{3}{3}\binom{7}{1}}{210} = \frac{1 \cdot 7}{210} = 0.0333$$

Cek jumlah:

0.1667 + 0.4286 + 0.3000 + 0.0333 = **1.000**

✔ Jawaban sesuai SPSS.

🔷 Kasus 2 – Motor A, B, C

Diketahui:

- Total N = 8
- 3 menggunakan A
- 3 menggunakan B
- 2 menggunakan C
- Diambil n = 4 orang
- Ditanya peluang: 1 A, 1 B, 2 C → k1=1, k2=1, k3=2

$$P = \frac{\binom{3}{1}\binom{3}{1}\binom{2}{2}}{\binom{8}{4}}$$

Hitung:

$$\binom{3}{1} = 3, \quad \binom{3}{1} = 3, \quad \binom{2}{2} = 1, \quad \binom{8}{4} = 70$$

$$P = \frac{3 \cdot 3 \cdot 1}{70} = \frac{9}{70} = 0.1286$$

✔ Sama seperti hasil modul.

💠 JAWABAN POST TEST

Kasus 3, 4, 5 → total nilai 100.

🔷 KASUS 3

Isi kantong: 8 kelereng

- Putih = 2
- Ungu = 2
- Kuning = 4

  Ambil n = 3

  Ditanya: **P(1 putih dan 1 ungu)**

  → Maka k1 = 1 putih, k2 = 1 ungu, k3 = 1 warna lain.

Total cara:

$$\binom{8}{3} = 56$$

Hitung peluang:

$$P = \frac{\binom{2}{1}\binom{2}{1}\binom{4}{1}}{56}$$

$$\binom{2}{1} = 2,\ \binom{2}{1} = 2,\ \binom{4}{1} = 4$$

$$P = \frac{2 \cdot 2 \cdot 4}{56} = \frac{16}{56} = 0.2857$$

✔ **Jawaban: 0.2857**

🔷 KASUS 4

Total barang = 50

Barang cacat = 4

Barang bagus = 46

Sampel n = 5

a. P(2 cacat & 3 tidak cacat)

$$P = \frac{\binom{4}{2}\binom{46}{3}}{\binom{50}{5}}$$

$$\binom{4}{2} = 6, \quad \binom{46}{3} = 15180, \quad \binom{50}{5} = 2118760$$

$$P = \frac{6 \cdot 15180}{2118760} = 0.0430$$

✔ **0.0430**

b. P(kurang dari 2 cacat) = P(0) + P(1)

P(0 cacat)

$$P(0) = \frac{\binom{4}{0}\binom{46}{5}}{\binom{50}{5}}$$

$$\binom{46}{5} = 1221759$$

$$P(0) = \frac{1 \cdot 1221759}{2118760} = 0.5764$$

P(1 cacat)

$$P(1) = \frac{\binom{4}{1}\binom{46}{4}}{\binom{50}{5}}$$

$$\binom{46}{4} = 163185$$

$$P(1) = \frac{4 \cdot 163185}{2118760} = 0.3081$$

Total

$$P(< 2) = 0.5764 + 0.3081 = 0.8845$$

✔ **0.8845**

c. P(minimal 4 tidak cacat) = 4 bagus atau 5 bagus

P(4 bagus, 1 cacat) = P(1 cacat) = 0.3081 (sudah dihitung)

P(5 bagus)

$$P = \frac{\binom{4}{0}\binom{46}{5}}{2118760} = 0.5764$$

Total:

$$P = 0.3081 + 0.5764 = 0.8845$$

✔ **0.8845**

🔷 KASUS 5

Total sabun = 10

- Mawar = 4
- Melati = 6

  Ambil n = 3

a. P(1 sabun mawar)

Berarti 1 mawar, 2 melati

$$P = \frac{\binom{4}{1}\binom{6}{2}}{\binom{10}{3}}$$

$$4 \cdot 15 = 60, \quad \binom{10}{3} = 120$$

$$P = \frac{60}{120} = 0.5$$

✔ 0.5

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b. P(2 mawar)

Berarti 2 mawar, 1 melati

$$P = \frac{\binom{4}{2}\binom{6}{1}}{120}$$

$$6 \cdot 6 = 36$$

$$P = \frac{36}{120} = 0.3$$

✔ 0.3

c. P(maksimum 1 mawar) = P(0 mawar) + P(1 mawar)

P(0 mawar)

$$\binom{6}{3} = 20$$

$$P = \frac{20}{120} = 0.1667$$

P(1 mawar) = 0.5 (sudah dihitung)

Total:

$$0.1667 + 0.5 = 0.6667$$

✔ **0.6667**

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d. P(maksimum 2 mawar) = P(0)+P(1)+P(2)

P(0) = 0.1667

P(1) = 0.5

P(2) = 0.3

$$P = 0.1667 + 0.5 + 0.3 = 0.9667$$

✔ **0.9667**
