MUHAMMAD KHILMAN SYAH
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1.) Hal 26 Latihan soal 2

Diket. A : kejadian kerusakan ban yg lewat jalan tol Krapyak

$P(A) = \frac{1}{1500}$

$n = 4500$

$\lambda = \frac{1}{1500} \cdot 4500^{3} = 3$ //

Ditanya : a. $P(x = 1)$
b. $P(x < 2)$
c. $P(x \geq 3)$

Jawab

a.) $P(x=1) = \frac{\lambda^x \cdot e^{-\lambda}}{x!} = \frac{3^1 \cdot (2,718)^{-3}}{1!}$

$= \frac{3}{(2,718)^3} = \frac{3}{20,085}$

$= 0,149$ //

b.) $P(x < 2) = P(0) + P(1)$

a) $P(x=0) = \frac{\lambda^x \cdot e^{-\lambda}}{x!} = \frac{3^0 \cdot (2,718)^{-3}}{0!}$

$= \frac{1}{20,085} = 0,049$ //

Jadi $P(x<2) = P(0) + P(1)$

$= 0,049 + 0,149 = 0,198$ //

c.) $P(x \geq 3) = 1 - P(x \leq 2)$

$= 1 - 0,4232$

$= 0,5768$ //

2.) Hal 27 Latihan soal 3

Diket. A = kejadian

$P(A) = \frac{2}{40}$

$n = 80$

$\lambda = \frac{2}{40} \cdot 80^{2} = 4$ //

Ditanya a. $P(x = 1)$
b. $P(x > 5)$.

Jawab

a. $P(x=1) = \frac{\lambda^x \cdot e^{-\lambda}}{x!}$

$= \frac{4^1 \cdot (2,718)^{-4}}{1!}$

$= \frac{4}{(2,718)^4}$

$= \frac{4}{54,598}$

$= 0,073$ //

b.) $p(x > 5) = p(x \geq 6)$
$= 1 - p(x \leq 5)$
$= 1 - 0,7851 = 0,2149$ //

3.) Hal 38 Latihan soal 1
Diket $\mu = 80$
$\sigma = 4,8$
Ditanya : a. $p(x < 87,2)$
b. $p(x > 76,4)$
c. $p(81,2 < x < 86,0)$
d. $p(71,6 < x < 88,4)$

Jawab

a. $z = \frac{x - \mu}{\sigma} = \frac{87,2 - 80}{4,8} = \frac{7,2}{4,8} = 1,5$ //
→ Tabel $z = 0,9332$ //

b. $z = \frac{x - \mu}{\sigma} = \frac{76,4 - 80}{4,8} = -0,77$
→ tabel $z = 0,2206$ //

c. → $z = \frac{x - \mu}{\sigma} = \frac{81,2 - 80}{4,8} = 0,25$
→ Tabel $z = 0,5987$ //

→ $z = \frac{x - \mu}{\sigma} = \frac{86 - 80}{4,8} = \frac{6}{4,8} = 1,25$
→ tabel $z = 0,89441$ //

Jadi $p(81,2 < x < 86,0) = 0,89441 - 0,5987$
$= 0,2957$ //

d. → $z = \frac{x - \mu}{\sigma}$
$= \frac{71,6 - 80}{4,8} = -1,75$ → tabel $z = 0,0401$ //

→ $z = \frac{x - \mu}{\sigma} = \frac{88,4}{4,8} = 1,75$ → tabel $z = 0,9599$ //

Jadi $p(71,6 < x < 88,4) = 0,9599 - 0,0401$
$= 0,9198$ //

4.) Hal 39 Latihan 2
Diket : $\mu = 4,54$
$\sigma = 0,25$
Ditanya : a. $p(x > 5)$
b. $p(x < 4)$
c. $p(4,4 < x < 4,6)$

Jawab

a.) $P(x>5) \rightarrow z = \frac{x-\mu}{\sigma} = \frac{5-4,54}{0,25}$

$\therefore 1,84 \rightarrow$ tabel $z = 0,9671$ //

Jadi presentase $P(x>5) = 96,71\%$ //

b.) $P(x<4) \rightarrow z = \frac{x-\mu}{\sigma} = \frac{4-4,54}{0,25}$

$= -2,16 \rightarrow$ tabel $z = 0,0158$ //

Jadi presentase $P(x<4) = 1,58\%$ //

c.) $\rightarrow z = \frac{x-\mu}{\sigma} = \frac{4,4-4,54}{0,25}$

$= -0,56 \rightarrow$ tabel $z = 0,2877$ //

Jadi presentase $P(x=4,4) = 28,77\%$ //

$\rightarrow z = \frac{x-\mu}{\sigma} = \frac{4,6-4,54}{0,25}$

$= 0,24 \rightarrow$ tabel $z = 0,5948$ //

Jadi presentase $P(x=4,6) = 59,48\%$.

Sehingga presentase $P(4,4<x<4,6) = 59,48 - 28,77$

$= 30,67\%$ //

5.) Hal 40 Latihan soal 3

Diket. $\mu = 200$

$\sigma = 15$

Ditanya a. $P(x>224)$

b. $P(191<x<209)$

c. $P(x>230)$ v/ ima bohol

d. $P(x = 25\%$ isi terendah)

Jawab

a.) $z = \frac{x-\mu}{\sigma} = \frac{224-200}{15} = 1,6 \rightarrow$ tabel $z = 0,9452$ //

b.) $z = \frac{x-\mu}{\sigma} = \frac{191-200}{15} = -0,6 \rightarrow$ tabel $z = 0,2743$ //.

$\rightarrow z = \frac{x-\mu}{\sigma} = \frac{209-200}{15} = 0,6 \rightarrow$ tabel $z = 0,7257$ //.

Jadi $P(191<x<209) = 0,2743 + 0,7257 = 1$ //

c.) $z = \frac{x-\mu}{\sigma} = \frac{230-200}{15} = 2 \rightarrow$ tabel $z = 0,9772$ //

Ima bohol Jadi $= 0,9772 \times 1000 = 977,2$ //.

$= 1000 - 977,2 = 22,8 \rightarrow$ 23 Bohol //

d) Misal nilai k diperoleh 25% → $P(z > z_1) = 0,25$ //

$P(x < k) = 25\%$

$1 - P(z > z_1) = 0,25$

$P(z > z_1) = 0,75$ //

Diperoleh $z_1 = 0,674$

$$z = \frac{x - \mu}{\sigma} = -z_1 = \frac{k - 200}{15}$$

$$-0,674 = \frac{k - 200}{15}$$

$$k - 200 = -10,11$$

$$k = 0,05$$ //

Jadi nilai terendah yg diperoleh = 0,05 //

M.K-S.