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1. $\lambda = 5$

a. $P(x=10) = P(x \leq 10) - P(x \leq 9)$
$= 0,9863 - 0,9682$
$= 0,0181$

b. $P(x \geq 15) = 1 - P(x \leq 14)$
$= 1 - 0,9998$
$= 0,0002$

c. $P(x=0) = 0,0067$

d. $P(4 \leq x \leq 12) = P(x \leq 12) - P(x \leq 3)$
$= 0,9980 - 0,2650$
$= 0,733$

2. Selisih nilai max dan min fungsi $f(x) = \frac{1}{3}x^3 + \frac{3}{2}x^2 - 9x$, interval $0 \leq x \leq 3$

$f'(x) = \frac{1}{3} \cdot 3x^2 + \frac{3}{2} \cdot 2x - 9$

$= x^2 + 3x - 9$

$a = 1, b = 3, c = -9$

$x = -\frac{3 \pm \sqrt{3^2 - 4 \cdot 1 \cdot (-9)}}{2 \cdot 1}$

$= -\frac{3 \pm \sqrt{9 + 36}}{2}$

$= -\frac{3 \pm \sqrt{45}}{2} = \frac{-3 + 3\sqrt{5}}{2}$ V $\frac{-3 - 3\sqrt{5}}{2}$

$= x \approx 1,854$ V $x \approx -4,854$

$f(-4,854) = \frac{1}{3}(-4,854)^3 + \frac{3}{2}(-4,854)^2 - 9(-4,854) = 40,906$
$f(0) = \frac{1}{3}(0)^3 + \frac{3}{2}(0)^2 - 9(0) = 0$
$f(1,854) = \frac{1}{3}(1,854)^3 + \frac{3}{2}(1,854)^2 - 9(1,854) = -9,406$

$f(3) = \frac{1}{3}(3)^3 + \frac{3}{2}(3)^2 - 9(3) = -4,5$

max = $f(-4,854) = 40,906$
min = $f(1,854) = -9,406$
selisih = $40,906 - (-9,406)$
$= 50,312$