

$$\lambda = 2 \quad k = 5 \quad \mu_x = \lambda k = 2(5) = 10$$

3. a) P(EXACTLY 8)

$$P(X = \underline{8})$$

Poisson PDF ($\mu_x, 9$)

Poisson PDF (10, 8)

$$.1126$$

b) P(LESS THAN 17)

$$P(X = 0, 1, \dots, 16)$$

$$P(X \leq \underline{16})$$

Poisson CDF ($\mu_x, 9$)

Poisson CDF (10, 16)

$$.9730$$

c) P(AT MOST 12)

$$P(X = 0, 1, \dots, 12)$$

$$P(X \leq \underline{12})$$

Poisson CDF ($\mu_x, 9$)

Poisson CDF (10, 12)

$$.7916$$

d) P(MORE THAN 20)

$$P(X = 21, 22, \dots)$$

$$P(X \geq \underline{21})$$

1 - Poisson CDF ($\mu_x, 9-1$)

1 - Poisson CDF (10, 21-1)

1 - Poisson CDF (10, 20)

$$.0016$$

e) P(AT LEAST 25)

$$P(X = 25, 26, \dots)$$

$$P(X \geq \underline{25})$$

1 - Poisson CDF ($\mu_x, 9-1$)

1 - Poisson CDF (10, 25-1)

1 - Poisson CDF (10, 24)

$$4.694 \text{ E } -5$$

$$4.694 \times 10^{-5}$$

$$0.00004694$$

f) P(BETWEEN 10 AND 20, INCLUSIVE)

$$P(X = 10, 11, \dots, 20)$$

$$P(\underline{10} \leq X \leq \underline{20})$$

Poisson CDF (μ_x, b) - Poisson CDF ($\mu_x, a-1$)

Poisson CDF (10, 20) - Poisson CDF (10, 10-1)

Poisson CDF (10, 20) - Poisson CDF (10, 9)

$$= 0.5405$$