

$$1) p: 5\% : 0,05$$

$$n: 6$$

$$a) P(X \geq 1) = P(X=1) + P(X=2) + P(X=3) + P(X=4) + P(X=5) + P(X=6)$$

$$\binom{6}{1} \cdot 0,05^1 \cdot 0,95^5 + \binom{6}{2} \cdot 0,05^2 \cdot 0,95^4 + \binom{6}{3} \cdot 0,05^3 \cdot 0,95^3 + \binom{6}{4} \cdot 0,05^4 \cdot 0,95^2$$

$$+ 0,95^5 \binom{6}{5} \cdot 0,05^5 + \binom{6}{6} \cdot 0,05^6 \cdot 0,95^0$$

$$= 0,2649 \text{ or } 26,49\%$$

$$b) P(X=1) = 1 \cdot 0,05 \cdot (1-0,05)^5 \quad P(X=6) = 6 \cdot 0,05^6 \cdot (1-0,05)^0$$

$$P(X=1) = 1 \cdot 1 \cdot 0,7330$$

$$P(X=6) = 6 \cdot 0,05 \cdot 0,7337$$

$$P(X=1) = 73,30\%$$

$$P(X=6) = 23,21\%$$

$$P(X=2) = 15 \cdot 0,05^2 \cdot (1-0,05)^4$$

$$P(X=2) = 15 \cdot 0,0025 \cdot 0,8145$$

$$P(X=2) = 3,05\%$$

$$P(X \geq 1) = 73,30\% + 23,21\% + 3,05\%$$

$$P(X \geq 1) = 99,56\%$$

$$2) \mu: 50000$$

$$\sigma: 40,00$$

$$P\left(\frac{43000-50000}{40} \leq Z \leq \frac{53000-50000}{40}\right)$$

$$P(-0,25 \leq Z \leq 0,5)$$

$$P(0,0363 + 0,1915) = 0,2278 \text{ or }$$

$$P(22,78\%)$$

$$b) \frac{53000-50000}{40} = 0,75 \text{ or } 75\%$$

$$3) a) \bar{x} = 20,00 \quad u_x: \bar{x} \pm 2 \frac{ss}{\sqrt{n}}$$

$$= 55,00$$

100 random

$$u_x: 250 \pm 1,96 \frac{ss}{\sqrt{100}}$$

$$u_x: 250 \pm 10,78$$

$$u_x: 239,22 \text{ a } 260,78 \text{ R\$}$$

$$b) Q: 2 \frac{ss}{\sqrt{n}}$$

$$Q: 1,96 \frac{ss}{\sqrt{100}}$$

$$Q: 10,78 \text{ R\$}$$

$$4) a) f = 6 \quad p = \frac{x}{n} \quad p = \frac{6}{40} \quad p = 0,15 = 15\%$$

$$p: \pm 1,96 \sqrt{\frac{p(1-p)}{n}}$$

$$p: 0,15 \pm 1,96 \sqrt{\frac{0,15(1-0,15)}{40}}$$

$$p: 0,15 \pm 0,07 \quad p: 6 \text{ a } 24\%$$

$$5) a) \sum_{i=1}^n x_i = 663, \sum_{i=1}^n x_i^2 = 48719, \sum_{i=1}^n y_i = 16322, \sum_{i=1}^n y_i^2 = 11148$$

$$n = 10$$

$$r = \frac{10(16322)(663) - (663)^2(16322)}{\sqrt{10(48719) - (663)^2} \sqrt{10(11148) - (16322)^2}}$$

$$r = 0,90 \quad (\text{relação negativa e forte})$$

b)  $b = \frac{10(165327) - (663)(2628)}{10(4879) - (663)^2} = -1,87$

a:  $\frac{2628 - (-1,87)(663)}{10} = 386,78$

$y = 386,78 - 1,87x$