

$$2. e = \frac{\sigma}{\sqrt{n}} = Z \frac{\alpha}{2}$$

$$(1) \sigma = 3 \quad e = 0,5 \quad 1 - \alpha = 0,95$$

$$n = \left( \frac{3}{0,5} \right)^2 \times 1,96^2 = 138,3 \approx 139$$

$$(2) \sigma = 0,2 \quad e = 0,03 \quad 1 - \alpha = 0,9$$

$$n = \left( \frac{0,2}{0,03} \right)^2 \times 1,645^2 = 120,27 \approx 121$$

$$(3) \sigma = 0,05 \quad e = 0,02 \quad 1 - \alpha = 0,98$$

$$n = \left( \frac{0,05}{0,02} \right)^2 \times 2,326^2 = 33,8 \approx 34$$

$$b. 1250 \pm Z_{0,25} \sqrt{\frac{140^2}{120}} = 1250 \pm 0,75 \times 34,1 \pm 25,075$$

$$= 1250 \pm 25,05 = (1224,95, 1275,05)$$

$$10, (1) M_1 - M_2 = \bar{x} - \bar{y} = 85 - 78 = 7$$

$$(2) 7 \pm 1,645 \sqrt{\frac{154}{50} + \frac{146}{40}}$$

$$= 7 \pm 1,645 \times 2,59$$

$$= 7 \pm 4,26 = (2,74, 11,26)$$

$$s = \frac{\sigma}{\sqrt{n}} = 9$$

$$(\hat{q} - 1) \times \hat{q} \times \left( \frac{8}{9} \right) = n$$

$$1,99 \pm 1,96 \times 0,01 = 1,99 \pm 0,0196 = (1,9704, 2,0096)$$