

Week 4

助教題

$$2. e = \frac{Q}{\sqrt{n}} \times Z_{\frac{\alpha}{2}}$$

$$1) \sigma = 3 \quad e = 0.5 \quad 1 - \alpha = 0.95$$

$$n = \left(\frac{3}{0.5} \right)^2 \times 1.96^2 = 138.3 \div 139$$

$$2) \sigma = 0.2 \quad e = 0.03 \quad 1 - \alpha = 0.9$$

$$n = \left(\frac{0.2}{0.03} \right)^2 \times 1.645^2 = 120.27 \div 121$$

$$3) \sigma = 0.05 \quad e = 0.02 \quad 1 - \alpha = 0.98$$

$$n = \left(\frac{0.05}{0.02} \right)^2 \times 2.326^2 = 33.8 \div 34$$

$$6. 1250 \pm Z_{0.025} \sqrt{\frac{140^2}{120}}$$

$$= 1250 \pm 25.05$$

$$\Rightarrow (1224.95, 1275.05)$$

10.

$$1) \mu_1 - \mu_2 = \bar{x} - \bar{y} = 85 - 78 = 7$$

$$2) 7 \pm 1.645 \sqrt{\frac{154}{50} + \frac{146}{40}}$$

$$= 7 \pm 1.645 \times 2.59$$

$$= 7 \pm 4.26$$

$$\Rightarrow (2.74, 11.26)$$