

Section B

1) Black Rock

Beaumaris

$$S = \sqrt{\frac{\sum x^2 - \frac{(\sum x)^2}{n}}{n-1}}$$

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$$S = \sqrt{\frac{284.99 - \frac{41.7^2}{7}}{6}}$$

$$S = \sqrt{\frac{182.6 - \frac{35.6^2}{7}}{6}}$$

$$= \sqrt{\frac{284.99 - 248.413}{6}}$$

$$= \frac{182.6 - 181.051}{6}$$

$$s_{bl}^2 = 6.09$$

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$$s_{be}^2 = 0.258$$

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SD

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$$T = \frac{|\bar{x}_{bl} - \bar{x}_{be}|}{\sqrt{\frac{(n_{bl}-1)s_{bl}^2 + (n_{be}-1)s_{be}^2}{n_{bl} + n_{be} - 2}}}$$

$$\times \frac{n_{bl} + n_{be}}{n_{bl} \times n_{be}}$$

$$= \frac{41.7 - 35.6}{\sqrt{\frac{(7-1) \times 6.09 + (7-1) \times 0.258}{7+7-2}}}$$

$$\times \frac{7+7}{7 \times 7}$$

$$= \underline{6.1}$$

$$\sqrt{\frac{6 \times 6.09 + 6 \times 0.258}{12} \times \frac{14}{49}}$$

$$= \frac{6.1}{\sqrt{36.34 + 1.548}} \times 0.285$$

$$= \frac{6.1}{\sqrt{38.088}} \times 0.285$$

$$= \frac{6.1}{6.171} \times 0.285$$

$$T = 0.282$$

$$\begin{aligned} Df &= n_1 + n_2 - 2 \\ &= 7 + 7 - 2 \\ &= 14 \end{aligned}$$

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$$2) b \quad T. = \frac{n(n+1)}{2} - k_1$$

$$= \frac{10(10+1)}{2} - 54$$

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$$3) \chi^2 = \sum \frac{O - E^2}{E}$$

$$Df = r - 1 \times c - 1$$

$$2 - 1 \times 4 - 1$$

$$1 \times 3$$

$$Df = 3$$

$$\text{Total } \chi^2 = 10.24 + 1.44 + 0.04 + 3.24$$
$$= 14.96$$

$$4) R_s = 1 - \frac{681^2}{n^3 - n}$$

$$= 1 - \frac{6 \times 126}{8^3 - 8}$$

$$= 1 - \frac{756}{504}$$

$$= 1 - 1.5$$

$$b = 0.5$$

$$g) \quad b = \frac{\sum xy - \frac{\sum x \times \sum y}{n}}{\sum x^2 - \frac{(\sum x)^2}{n}}$$

$$= \frac{332 - \frac{50 \times 38}{7}}{498 - \frac{50^2}{7}}$$

$$= \frac{332 - 271.429}{498 - 357.143}$$

$$= \frac{60.571}{140.857}$$

$$b = 0.430$$

$$a = \bar{y} - b\bar{x}$$

$$= \frac{38}{7} + \left(0.430 \times \frac{50}{7}\right)$$

$$= 5.429 + 3.071$$

$$a = 8.5$$

$$\therefore \text{equation} = y = 2.358 + 0.430x$$

$$\text{@ } 5 \text{ km} \quad y = 2.358 + 0.5 \times 5$$

$$= 4.858 \text{ km g}$$