ESS 132 Week 3 Discussion tasks

i) Using the 2 maps below, draw in the Thiessen polygons and isohyets. You can do this on paper, or using powerpoint. If there is time, use the table on the second page to calculate the EUD for the Thiessen polygons and then calculate the EUR for the isohyets you have drawn. Please show your workings so I can offer feedback if you are going wrong somewhere!
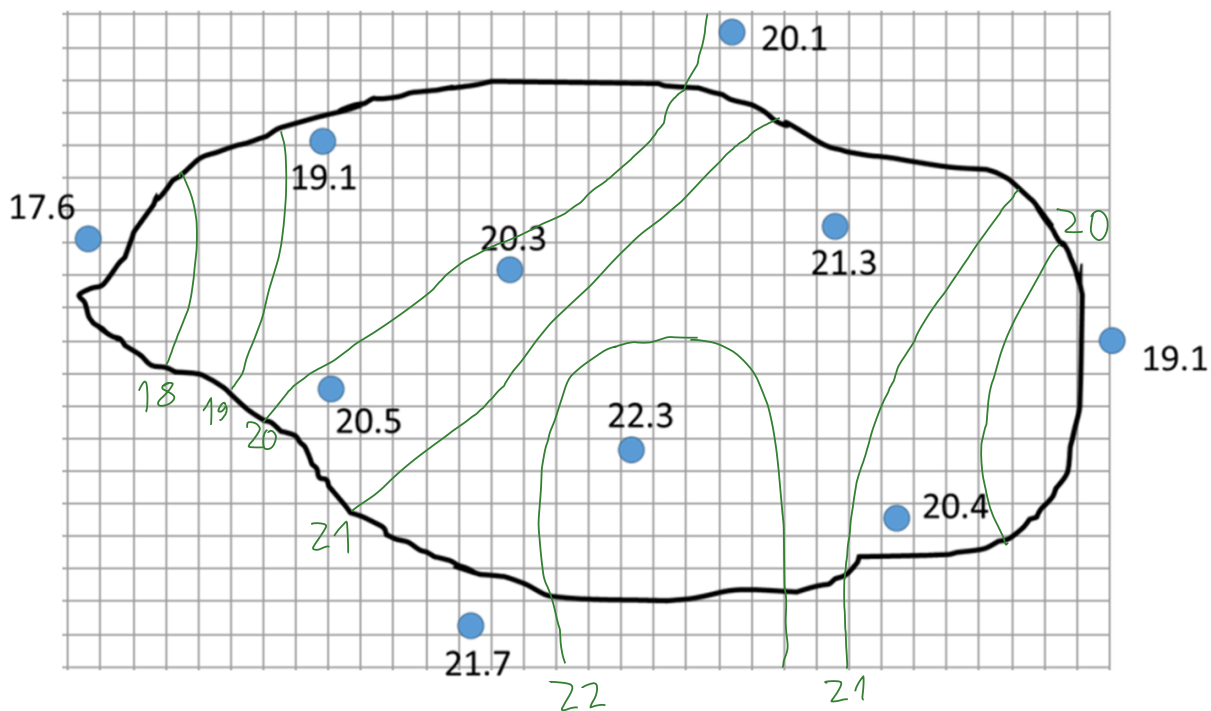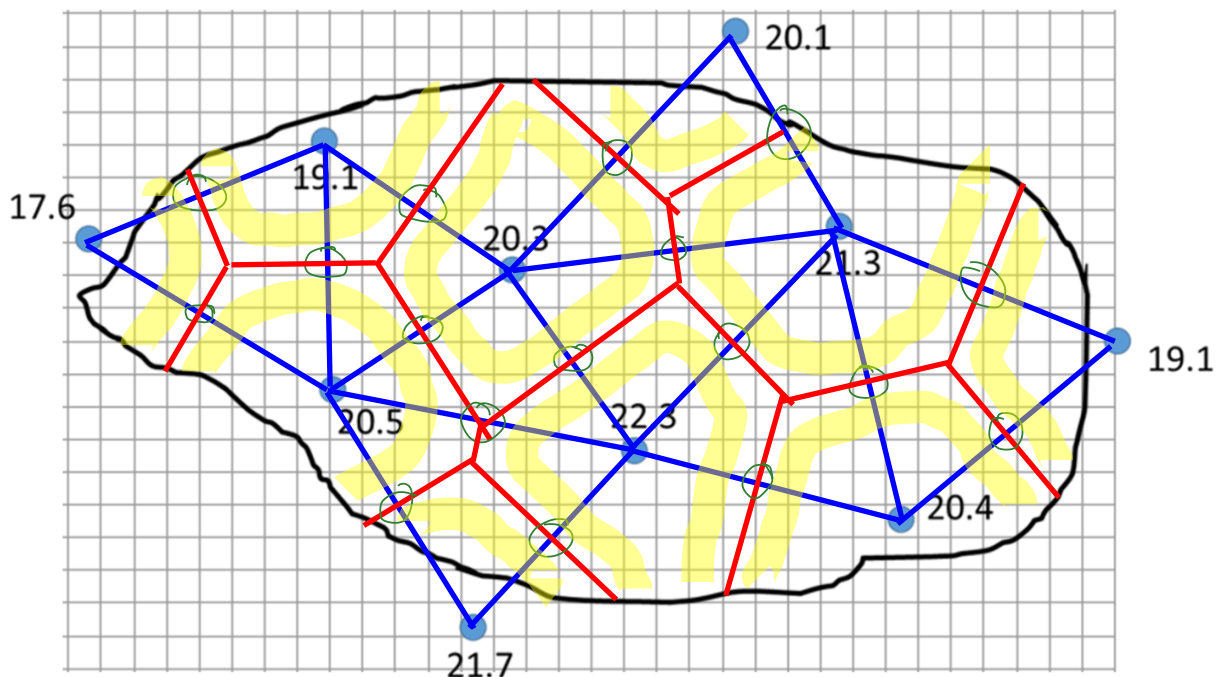
Table for Thiessen polygons

Region	A-17.6mm	B-19.1mm	C-20.5mm	D-21.7mm	E-20.3mm	F-20.1mm	G-22.3mm	H-21.3mm	I-20.4mm	J-19.1mm
Area (km2)	14	37	44	12	53	13	57	56	40	22

$$EUD = \frac{14 \ km^2 \times 17.6 \ mm}{348 \ km^2} + \frac{37 \ km^2 \times 19.1 \ mm}{348 \ km^2} + \frac{44 \ km^2 \times 20.5 \ mm}{348 \ km^2} + \frac{12 \ km^2 \times 21.7 \ mm}{348 \ km^2}$$

$$+ \frac{53 \ km^2 \times 20.3 \ mm}{348 \ km^2} + \frac{13 \ km^2 \times 20.1 \ mm}{348 \ km^2} + \frac{57 \ km^2 \times 22.3 \ mm}{348 \ km^2}$$

$$+ \frac{56 \ km^2 \times 21.3 \ mm}{348 \ km^2} + \frac{40 \ km^2 \times 20.4 \ mm}{348 \ km^2} + \frac{22 \ km^2 \times 19.1 \ mm}{348 \ km^2}$$

$$EUD = 20.55 \ mm$$

Table for your isohyets

Isohyet	below 18 mm	18-19 mm	19-20 mm	20-21 mm	21-22 mm	above 22 mm
Area (km²)	8	15	55+15	37+26	96	45

$$EUD = (\frac{8 \ km^2 \times 18 \ mm}{297 \ km^2}) + \left(\frac{15 \ km^2}{297 \ km^2} \times \frac{18 \ mm + 19 \ mm}{2}\right) + \left(\frac{55 \ km^2}{297 \ km^2} \times \frac{19 \ mm + 20 \ mm}{2}\right)$$

$$+ (\frac{15 \ km^2 \times 20 \ mm}{297 \ km^2}) + \left(\frac{37 \ km^2 + 26 \ km^2}{297 \ km^2} \times \frac{20 \ mm + 21 \ mm}{2}\right)$$

$$+ \left(\frac{96 \ km^2}{297 \ km^2} \times \frac{21 \ mm + 21 \ mm + 22 \ mm}{3}\right) + (\frac{45 \ km^2 \times 22 \ mm}{297 \ km^2})$$

$$EUD = 20.62 \ mm$$