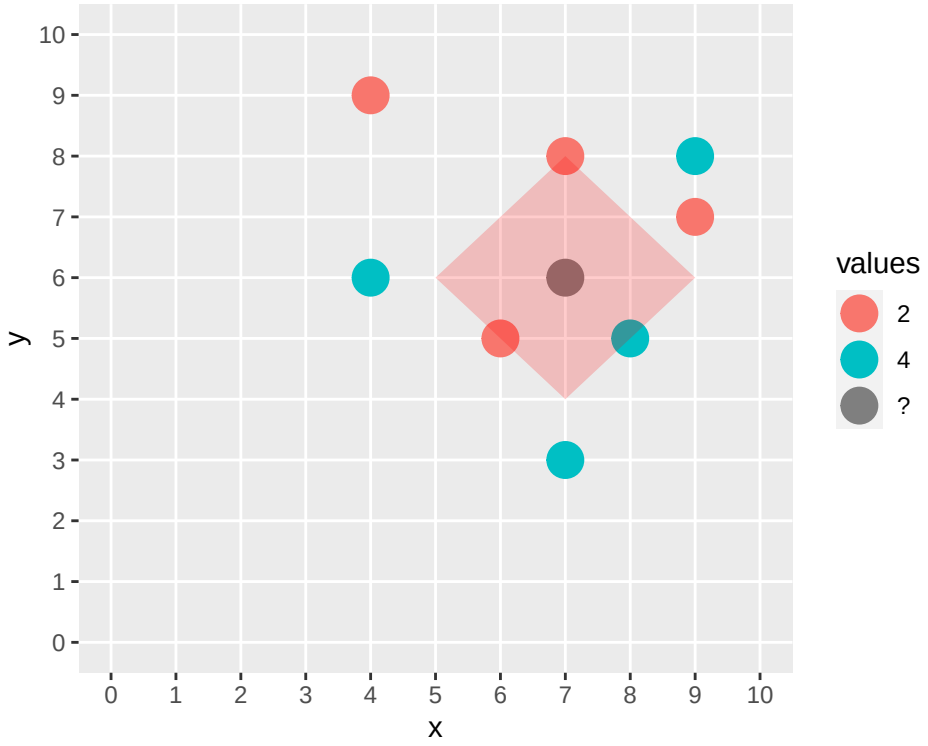
Solution 1:

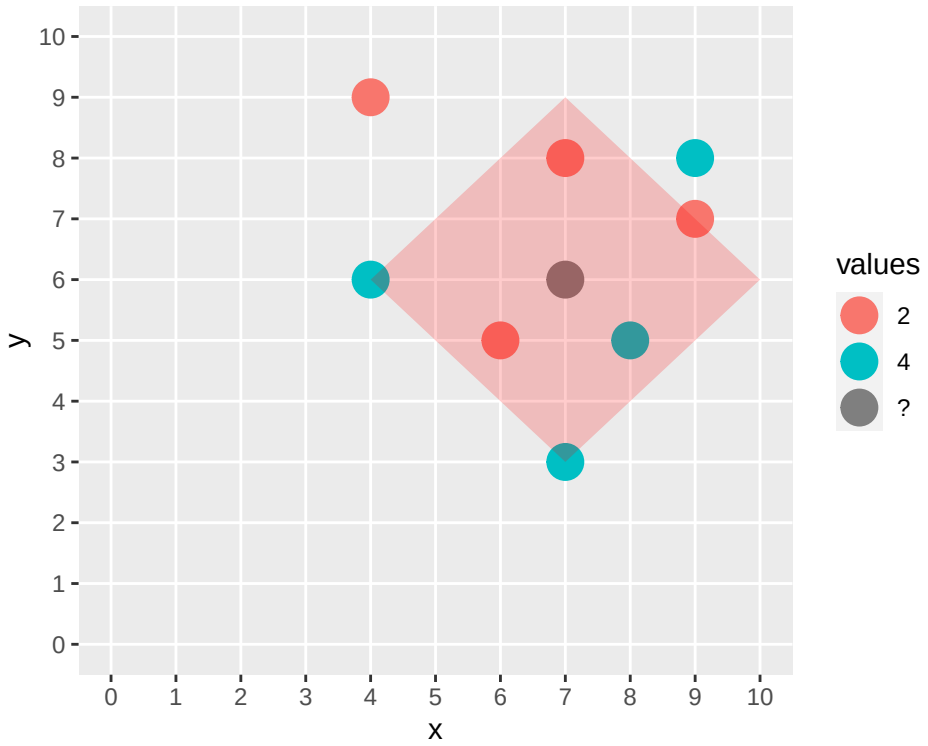
a) $k = 3$

$$\hat{y} = \frac{2+2+4}{3} = \frac{8}{3} \approx 2.67$$
$$\hat{y}_{\text{weighted}} = \frac{\frac{1}{2}\cdot 2 + \frac{1}{2}\cdot 2 + \frac{1}{2}\cdot 4}{\frac{3}{2}} = \frac{8}{3} \approx 2.67$$



b) $k = 5$

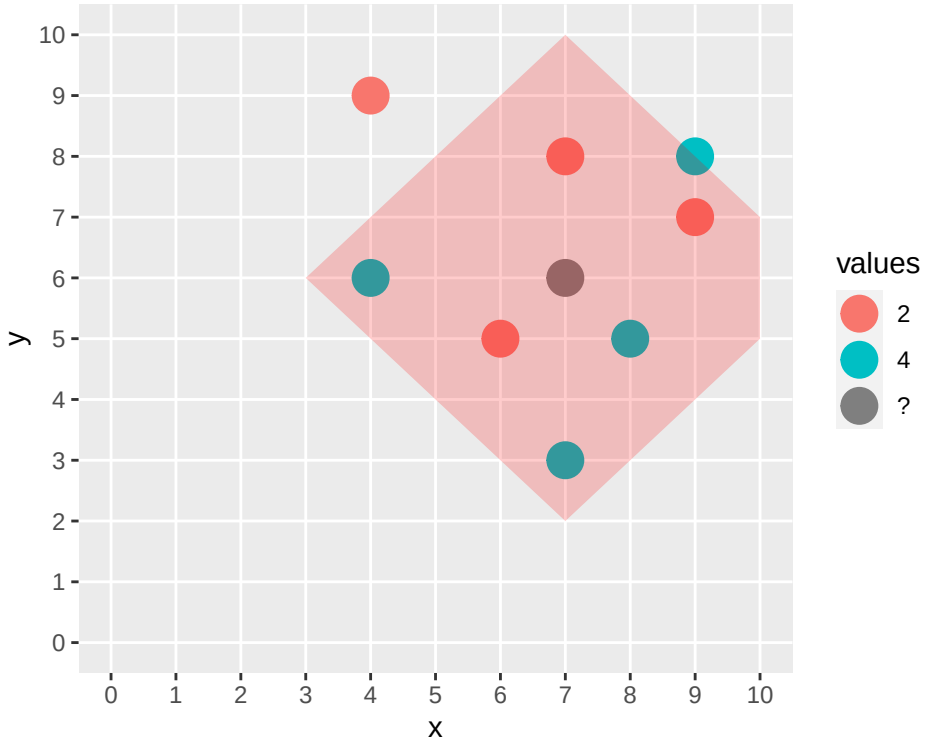
$$\hat{y} = \frac{2+2+2+4+4+4}{6} = 3$$
$$\hat{y}_{\text{weighted}} = \frac{\frac{1}{2}\cdot 2 + \frac{1}{2}\cdot 2 + \frac{1}{3}\cdot 2 + \frac{1}{2}\cdot 4 + \frac{1}{3}\cdot 4 + \frac{1}{3}\cdot 4}{\frac{5}{2}} = \frac{44}{15} \approx 2.93$$



c) $k = 7$

$$\hat{y} = \frac{2+2+2+4+4+4+4}{7} = \frac{22}{7} \approx 3.14$$

$$\hat{y}_{\text{weighted}} = \frac{\frac{1}{2}\cdot 2 + \frac{1}{2}\cdot 2 + \frac{1}{3}\cdot 2 + \frac{1}{2}\cdot 4 + \frac{1}{3}\cdot 4 + \frac{1}{3}\cdot 4 + \frac{1}{4}\cdot 4}{\frac{11}{4}} = \frac{100}{33} \approx 3.03$$



Solution 2:

tbd

Solution 3:

See R code