In-class
11/02

① Sample = (6.0, 3.0, 5.0)

Centroid = (7.3, 4.3, 6.0)

Euclidean distance =

$= \sqrt{(6-7.3)^2 + (3-4.3)^2 + (5-6)^2}$

$= \sqrt{1.3^2 + 1.3^2 + 1} = \sqrt{4.38} = 2.1$

② Sample = (6, 3, 5)

mean(μ) = (7.3, 4.3, 6)

Variance (σ^2) = (2.3, 10.3, 1.0)

No Covariance

(mean - Sample)^2 = (1.3^2, 1.3^2, 1)

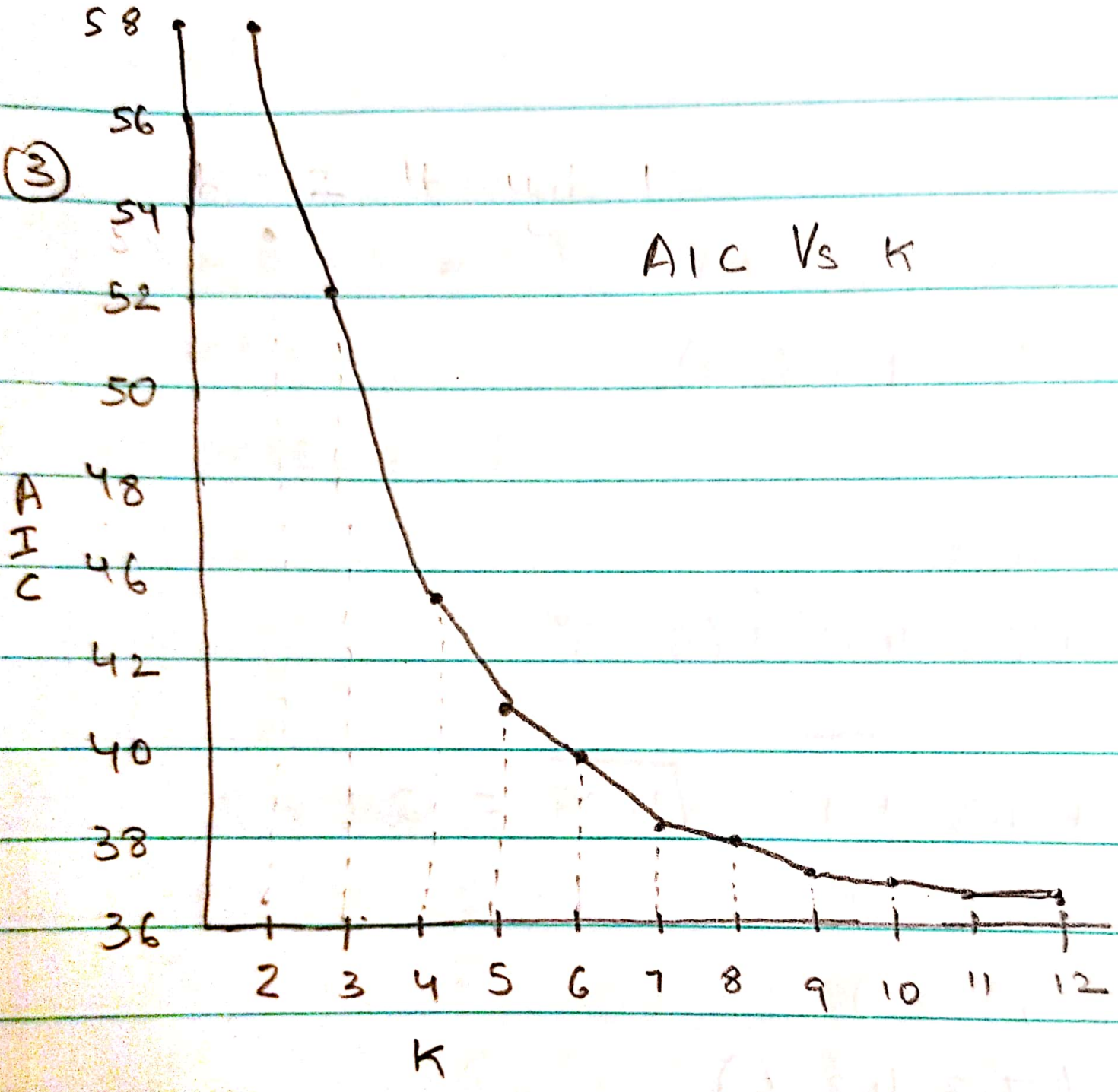
= (1.69, 1.69, 1)

$(\text{mean} - \text{sample})^2/\sigma^2 = \left(\frac{1.69}{2.3}, \frac{1.69}{10.3}, \frac{1}{1.0}\right) = (0.73, 0.16, 1)$

$\text{Sm}(\text{mean} - \text{sample})^2/\sigma^2 = (0.73 + 0.16 + 1) = 1.89$

Mahalanobis distance = $\sqrt{1.89} = 1.38$

(3)



Best K for GM = 5