In the video titled "MSE as MLE", at 0:56, we are computing a quantity ϵ_i. This quantity is

(A) The perpendicular distance of the points from the line

(B) The distance of the points from the line along X-axis

(C) The distance of the points from the line along Y-axis

(D) **[Ans]** None of these

In the video titled "Data from Multivariate Gaussians", at 06:39, we are talking about isocontours. Consider for a 2-D gaussian, the isocontours are circular. Suppose we have two such circles c_1, c_2, with radii r_1 and r_2 respectively. The probabilities of each point on c_1 is p_1 and that on c_2 is p_2. Then, given that $r_1 > r_2$, we can say that

(A) $p_1 < p_2$

(B) **[Ans]** $p_1 > p_2$

(C) $p_1 = p_2$

(D) Cant be said from given information

In the video titled "Bias and variance", we talk about "underfitting" and "overfitting". Suppose we have are trying to fit a polynomial on a given data and we are overfitting in our problem. Which of these could be a possible solution

(A) **[Ans]** Collect more data

(B) Increase the degree of the polynomial

(C) **[Ans]** Decrease the degree of the polynomial

(D) None of these

In the video titled "Decision Boundaries for Multivariate Gaussians", at 2:09, we are talking of a closed form expression for θ.

Given $(X|\omega_1) \sim N(\mu_1, \sigma_1)$ and $(X|\omega_2) \sim N(\mu_2, \sigma_2)$ Derive the expression for θ in a 1-dimensional scenario

(A) θ is the solution of a linear equation

(B) **[Ans]** θ is the solution of a quadratic equation

(C) θ is the solution of an exponential equation

(D) θ cannot be calculated in closed form

In the video titled "Regularization in Regression" we assert that L1 regularization leads to sparsity while L2 does not. We want to prove/disprove this:

Consider the vector $x = (1, \epsilon) \in R^2$ where $\epsilon > 0$ is small. Suppose that as part of some regularization procedure, we have to reduce one of the elements of x by δ.

This gives two options: x_1: $(1 - \delta, \epsilon)$ and x_2: $(1, \epsilon - \delta)$

(A) **[Ans]** L1 norm of x_1 and x_2 are same

(B) L2 norm of x_1 and x_2 are same

(C) **[Ans]** Decrease in L2 norm from x to x_1 is more than that from x to x_2

(D) This proves that L1 norm promotes decrease of the larger quantity in x rather than reducing the smaller one to zero

(E) **[Ans]** This proves that L2 norm promotes decrease of the larger quantity in x rather than reducing the smaller one to zero