We know that the VC dimension of a set of lines in 2D is 3. What is the VC dimension of a set of planes in 3D?

(A) **[Ans]** $3+1 = 4$

(B) $2+2 = 2$

(C) $2 \times \frac{3}{4} = 6$

(D) Remains the same. i.e., 3

(E) None of the above

We know that $\tanh(x) = \frac{e^x - e^{-x}}{e^x + e^{-x}}$. What is the derivative of $tanh(x)$

(A) $1 + \tanh(x)$

(B) **[Ans]** $1 - \tanh^2(x)$

(C) $\tanh(x)(1 - \tanh(x))$

(D) $1 + \tanh^2(x)$

(E) None of the above

An MLP has two inputs, two hidden layers of 3 neurons each and an output of two neurons. All the neurons have biases. The number of weights (or learnable parameters) is:

(A) 24

(B) 21

(C) **[Ans]** 29

(D) 37

(E) None of the above

Make the necessary minimal changes (if any required) and rewrite as true sentences in the space provided. Avoid changing the words in bold.

A Single Layer Perceptron **can solve ExOR problem**.

Make the necessary minimal changes (if any required) and rewrite as true sentences in the space provided. Avoid changing the words in bold.

Backpropagation algorithm *can guarantee (always find) the optimal solution/weights* **for a Multilayer Perceptron**.