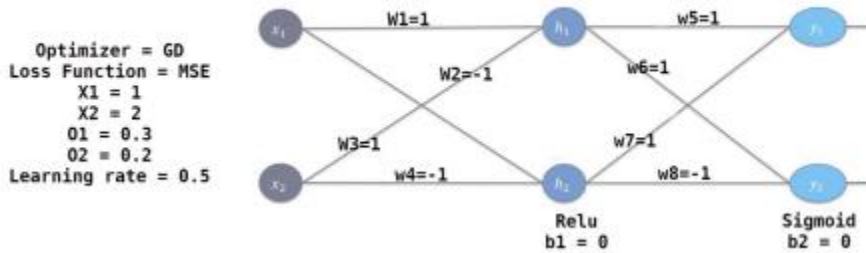Answer the following questions(1 to 3) according to the picture below.

1. What number will the GD algorithm suggest for 'W8' after one epoch?(O1, O2:True Values)

#Leave the answer file here!

2. What number will the GD algorithm suggest for 'W7' after one epoch?

#Leave the answer file here!

3. What number will the GD algorithm suggest for 'W4' after one epoch?

#Leave the answer file here!

4. Calculate the following gradient!

$$f(x, y) = x^2 y \quad \longrightarrow \quad \nabla f(3, 2).$$

#Leave the answer file here!

5. What is the minimum number of hidden layers in deep networks?

#Leave the number here!

6. Implement Neural Network using Dense, Dropout and Flatten layers on MNIST (HandWritten) dataset!

Model Architecture:

1. Flatten

2. Dense --> number of nodes: 500, ActivationFunction: relu

3. Dense --> number of nodes: 300, ActivationFunction: relu

4. Dropout ---> argument: 0.3

5. Dropout ----> number of nodes: Desired, ActivationFunction: Desired

Optimizer: adam Loss: 'sparse_categorical_crossentropy'

Other hyper parameters: Desired!

#1. Import Libraries

#2. Load the Data

#3. Normalize the images

#4. Model Architecture (according to the mentioned architecture above!)

#5. Compile

#6. Fit

#7. Evaluate

#8. Download an image from the net and predict that.