Congratulations! You passed!

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1. What is stored in the 'cache' during forward propagation for latter use in backward propagation? **1 / 1 point**

- $b^{[l]}$
- $A^{[l]}$
- $Z^{[l]}$
- $W^{[l]}$

Expand

Correct
Yes. This value is useful in the calculation of $dW^{[l]}$ in the backward propagation.

2. Among the following, which ones are "hyperparameters"? (Check all that apply.) **1 / 1 point**

- [ ] activation values $a^{[l]}$
- [ ] bias vectors $b^{[l]}$
- [x] size of the hidden layers $n^{[l]}$

Correct

- [ ] weight matrices $W^{[l]}$
- [x] number of iterations

Correct

- [x] learning rate $$\alpha$$

Correct

- [x] number of layers $$L$$ in the neural network

Correct

Expand

Correct
Great, you got all the right answers.

3. Considering the intermediate results below, which layers of a deep neural network are they likely to belong to? **1 / 1 point**

- (●) Later layers of the deep neural network.
- ( ) Early layers of the deep neural network.
- ( ) Input layer of the deep neural network.
- ( ) Middle layers of the deep neural network.

Expand

Correct
Correct. The deep layers of a neural network are typically computing more complex features such as the ones shown in the figure.

4. Vectorization allows you to compute forward propagation in an L-layer neural network without an explicit for-loop (or any other explicit iterative loop) over the layers l=1, 2, …,L. True/False? **1 / 1 point**

- ( ) True
- (●) False

Expand

Correct
Forward propagation propagates the input through the layers, although for shallow networks we may just write all the lines ($a^{[2]} = g^{[2]}(z^{[2]}), z^{[2]} = W^{[2]}a^{[1]} + b^{[2]}$, ...) in a deeper network, we cannot avoid a for loop iterating over the layers: ($a^{[l]} = g^{[l]}(z^{[l]}), z^{[l]} = W^{[l]}a^{[l-1]} + b^{[l]}$, ...).

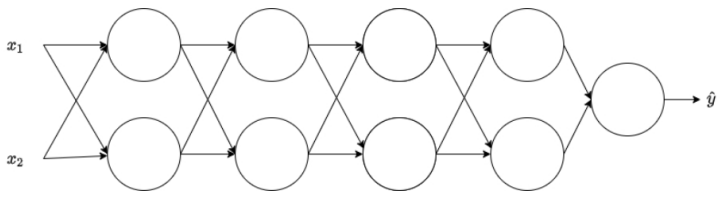
5. Assume we store the values for $n^{[l]}$ in an array called layer_dims, as follows: layer_dims = [n_x, 4,3,2,1]. So layer 1 has four hidden units, layer 2 has 3 hidden units and so on. Which of the following for-loops will allow you to initialize the parameters for the model? **1 / 1 point**

- ( ) for i in range(1, len(layer_dims)/2):
  parameter['W' + str(i)] = np.random.randn(layer_dims[i], layer_dims[i-1]) * 0.01
  parameter['b' + str(i)] = np.random.randn(layer_dims[i], 1) * 0.01
- (●) for i in range(1, len(layer_dims)):
  parameter['W' + str(i)] = np.random.randn(layer_dims[i], layer_dims[i-1]) * 0.01
  parameter['b' + str(i)] = np.random.randn(layer_dims[i], 1) * 0.01
- ( ) for i in range(1, len(layer_dims)/2):
  parameter['W' + str(i)] = np.random.randn(layer_dims[i], layer_dims[i-1]) * 0.01
  parameter['b' + str(i)] = np.random.randn(layer_dims[i-1], 1) * 0.01
- ( ) for i in range(1, len(layer_dims)):
  parameter['W' + str(i)] = np.random.randn(layer_dims[i-1], layer_dims[i]) * 0.01
  parameter['b' + str(i)] = np.random.randn(layer_dims[i], 1) * 0.01

Expand

Correct

6. Consider the following neural network: **1 / 1 point**



How many layers does this network have?

- ( ) The number of layers L is 4.

- The number of layers L is 5.
- The number of layers L is 6
- The number of layers L is 2.

Expand

Correct
Yes. The number of layers is the number of hidden layers + 1.

7. If L is the number of layers of a neural network then $dZ^{[L]} = A^{[L]} - Y$. True/False? **1 / 1 point**

- True
  Yes. The gradient of the output layer depends on the difference between the value computed during the forward propagation process and the target values.
- False
  No. The gradient of the output layer depends on the difference between the value computed during the forward propagation process and the target values.

Expand

Correct

8. There are certain functions with the following properties: **1 / 1 point**

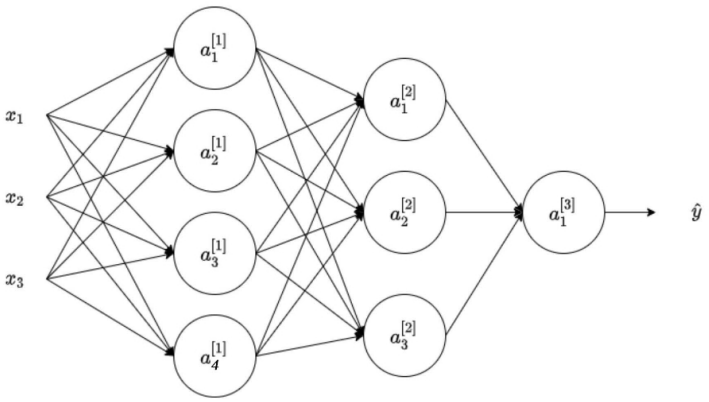
(i) To compute the function using a shallow network circuit, you will need a large network (where we measure size by the number of logic gates in the network), but (ii) To compute it using a deep network circuit, you need only an exponentially smaller network. True/False?

- False
- True

Expand

Correct

9. Consider the following 2 hidden layers neural network: **1 / 1 point**



Which of the following statements is true? (Check all that apply).

- $b^{[1]}$ will have shape (3, 1)
- $W^{[1]}$ will have shape (3, 4)
- $W^{[2]}$

$W^{[2]}$ will have shape (1, 3)

$$W^{[2]}$$ will have shape (3, 4)

Correct
Yes. More generally, the shape of $$W^{[l]}$$ is ($$n^{[l]}$$, $$n^{[l-1]}$$).

$$b^{[1]}$$ will have shape (4, 1)

Correct
Yes. More generally, the shape of $$b^{[l]}$$ is ($$n^{[l]}$$, 1).

$$W^{[1]}$$ will have shape (4, 3)

Correct
Yes. More generally, the shape of $$W^{[l]}$$ is ($$n^{[l]}$$, $$n^{[l-1]}$$).

$$W^{[l]}$$ will have shape (4, 3)

Correct
Yes. More generally, the shape of $$W^{[l]}$$ is ($$n^{[l]}$$, $$n^{[l-1]}$$).

Expand

Correct
Great, you got all the right answers.

10. In the general case if we are training with m examples what is the shape of $A^{[l]}$?

1 / 1 point

- $(m, n^{[l+1]})$
- $(m, n^{[l]})$
- $(n^{[l]}, m)$
- $(n^{[l+1]}, m)$

Expand

Correct
Yes. The number of rows in $A^{[1]}$ corresponds to the number of units in the l-th layer.