Congratulations! You passed!

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Go to next item

1. Which of the following is stored in the 'cache' during forward propagation for latter use in backward propagation? 1 / 1 point

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

Expand

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

2. Which of the following are “parameters” of a neural network? (Check all that apply.) 1 / 1 point

- [x] $W^{[l]}$ the weight matrices.

  Correct
  Correct. The weight matrices and the bias vectors are the parameters of the network.

- [ ] L the number of layers of the neural network.
- [x] $b^{[l]}$ the bias vector.

  Correct
  Correct. The weight matrices and the bias vectors are the parameters of the network.

- [ ] $g^{[l]}$ the activation functions.

Expand

Correct
Great, you got all the right answers.

3. Which of the following statements is true? 1 / 1 point

- (●) The deeper layers of a neural network are typically computing more complex features of the input than the earlier layers.
- ( ) The earlier layers of a neural network are typically computing more complex features of the input than the deeper layers.

Expand

Correct

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

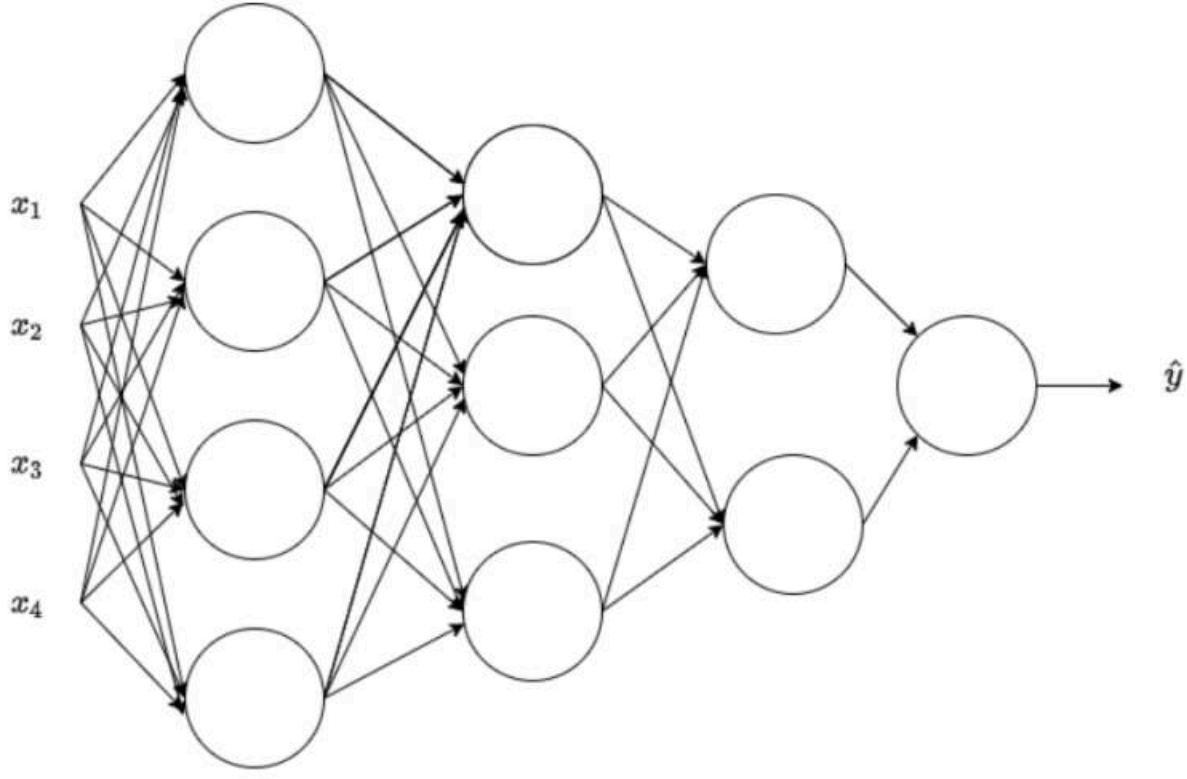
- for i in range(1, len(layer_dims)/2):
  parameter['W' + str(i)] = np.random.randn(layer_dims[i], layer_dims[i-1]) * 0.01
  parameter['b' + str(i)] = np.random.randn(layer_dims[i], 1) * 0.01
- for i in range(1, len(layer_dims)):
  parameter['W' + str(i)] = np.random.randn(layer_dims[i], layer_dims[i-1])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



What are all the values of $n^{[0]}, n^{[1]}, n^{[2]}, n^{[3]}$ and $n^{[4]}$?

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- 4, 4, 3, 2
- 4, 3, 2, 1
- 4, 4, 3, 2, 1
- 4, 3, 2

Expand

Correct
Yes. The $n^{[l]}$ are the number of units in each layer, notice that $n^{[0]} = n_x$.

7. During forward propagation, to calculate $A^{[l]}$, you use the activation function $g^{[l]}$ with the values of $Z^{[l]}$. 1 / 1 point

True/False: During backward propagation, you calculate $dA^{[l]}$ from $Z^{[l]}$.

- True
- False

Expand

Correct

Correct. During backward propagation we are interested in computing $dW^{[l]}$ and $db^{[l]}$. For that we use $g'^{L}, dZ^{[l]}, Z^{[l]}$, and $W^{[l]}$.

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?

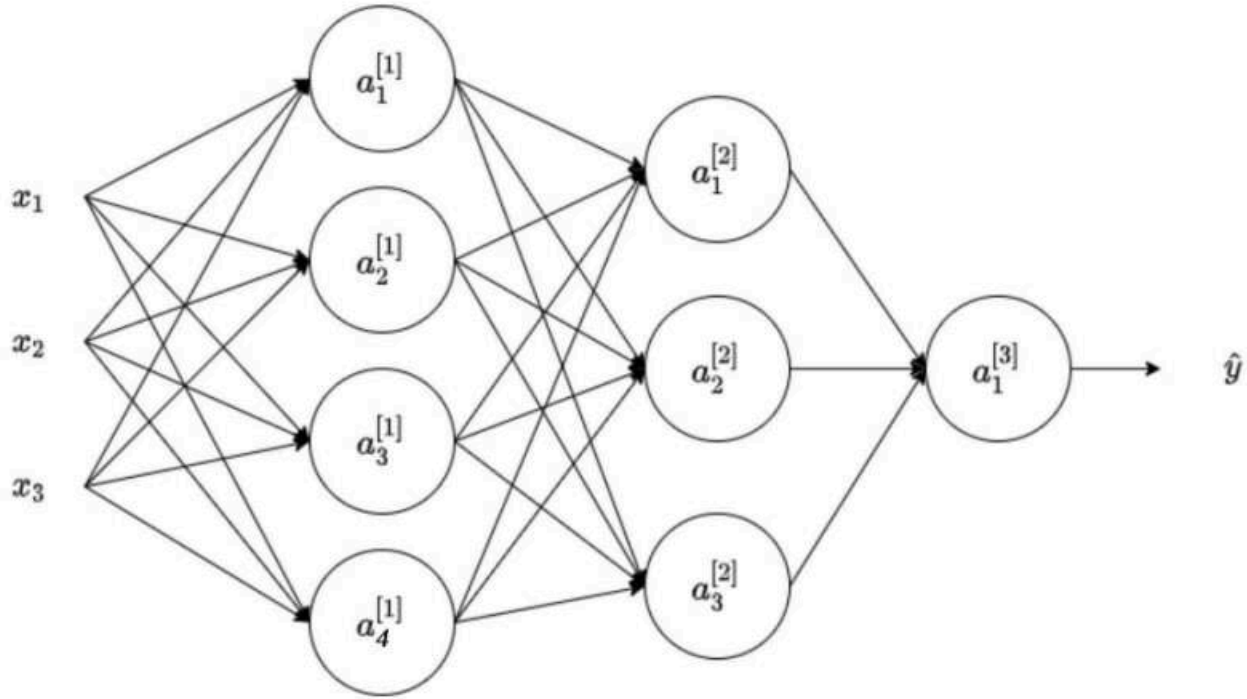
- (●) True
- ( ) False

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).

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

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

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

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

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

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

✓ **Correct**

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

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

Expand

✓ **Correct**

Great, you got all the right answers.

10. Whereas the previous question used a specific network, in the general case what is the dimension of $b^{[l]}$, the bias vector associated with layer l? 1 / 1 point

- $b^{[l]}$ has shape $(1, n^{[l]})$
- $b^{[l]}$ has shape $(1, n^{[l-1]})$
- $b^{[l]}$ has shape $(n^{[l]}, 1)$
- $b^{[l]}$ has shape $(n^{[l+1]}, 1)$

Expand

Correct
True. $b^{[l]}$ is a column vector with the same number of rows as units in the respective layer.