

✔ Congratulations! You passed!

Grade  
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Grade 100%

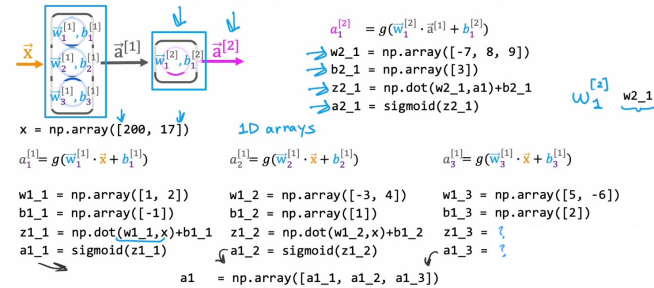
To pass 80% or  
higher

Go to next item

1.

1 / 1 point

## forward prop (coffee roasting model)



According to the lecture, how do you calculate the activation of the third neuron in the first layer using NumPy?

☐

layer\_1 = Dense(units=3, activation='sigmoid')

a\_1 = layer\_1(x)

☒

z1\_3 = np.dot(w1\_3, x) + b1\_3

a1\_3 = sigmoid(z1\_3)

☐

z1\_3 = w1\_3 \* x + b

a1\_3 = sigmoid(z1\_3)

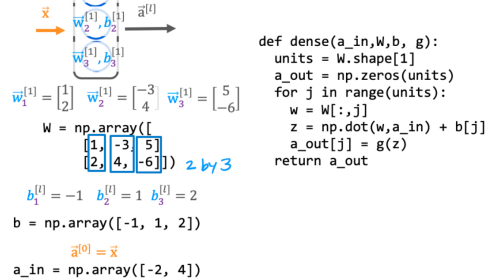
✔ Correct

Correct. Use the numpy.dot function to take the dot product. The sigmoid function shown in lecture can be a function that you write yourself (see course 1, week 3 of this specialization), and that will be provided to you in this course.

2.

1 / 1 point

## Forward prop in NumPy



According to the lecture, when coding up the numpy array W, where would you place the w parameters for each neuron?

☐

In the rows of W.

☒

In the columns of W.

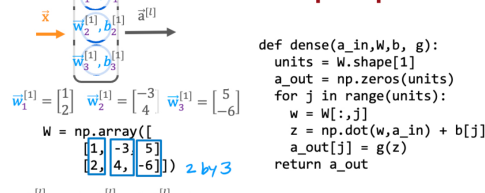
✔ Correct

Correct. The w parameters of neuron 1 are in column 1. The w parameters of neuron 2 are in column 2, and so on.

3.

1 / 1 point

## Forward prop in NumPy



```
 $b_1^{(1)} = -1$   $b_2^{(1)} = 1$   $b_3^{(1)} = 2$   
b = np.array([-1, 1, 2])  
 $\vec{a}^{(0)} = \vec{x}$   
a_in = np.array([-2, 4])
```

For the code above in the "dense" function that defines a single layer of neurons, how many times does the code go through the "for loop"? Note that W has 2 rows and 3 columns.

- ☐ 5 times
- ☒ 3 times
- ☐ 2 times
- ☐ 6 times



**Correct**

Yes! For each neuron in the layer, there is one column in the numpy array W. The for loop calculates the activation value for each neuron. So if there are 5 columns in W, there are 5 neurons in the dense layer, and therefore the for loop goes through 5 iterations (one for each neuron).