

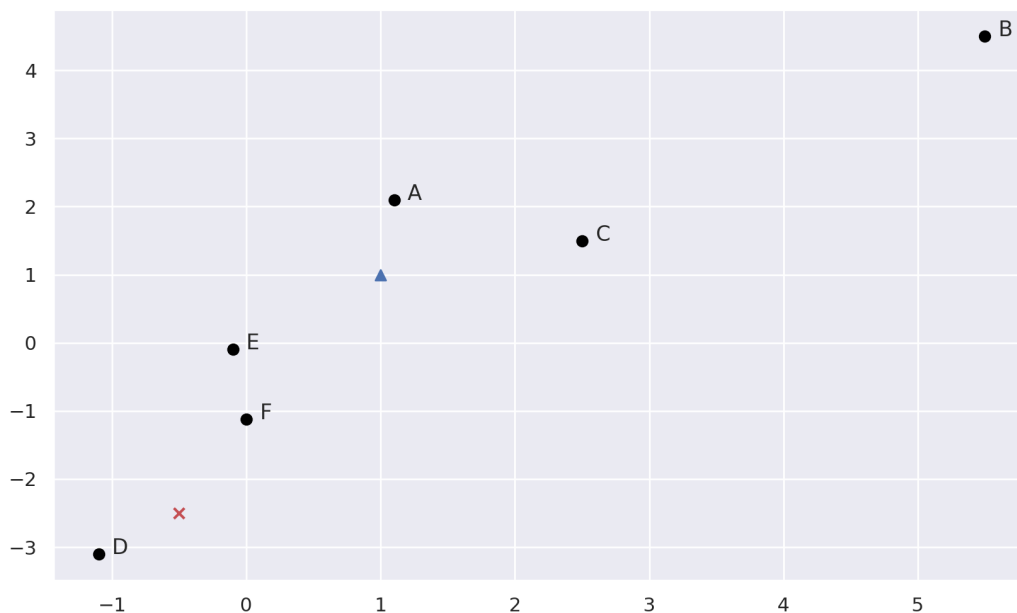
HW5 Questions

1. Calculate the Euclidean distance of the following two points by hand:

$$a = [1, 1.5, 2], b = [-1, -3, -1.5]$$

2. Consider the following 2D points (black dots) and centroid locations (cross and triangle). Use the following data and centroids, perform one iteration of K -means:

```
1 data = [  
2   [1.1, 2.1], # A  
3   [5.5, 4.5], # B  
4   [2.5, 1.5], # C  
5   [-1.1, -3.1], # D  
6   [-0.1, -0.1], # E  
7   [0, -1.12] # F  
8 ]  
9 centroids = {  
10  "centroid0": [-0.5, -2.5], # cross  
11  "centroid1": [1, 1] # triangle  
12 }
```



- (a) What's the return value of `assign_data_to_closest_centroid` on Point A?
- (b) What's the return value of `update_assignment`?
- (c) Where are the new centroids' locations after `update_centroids`? Mark them on the graph