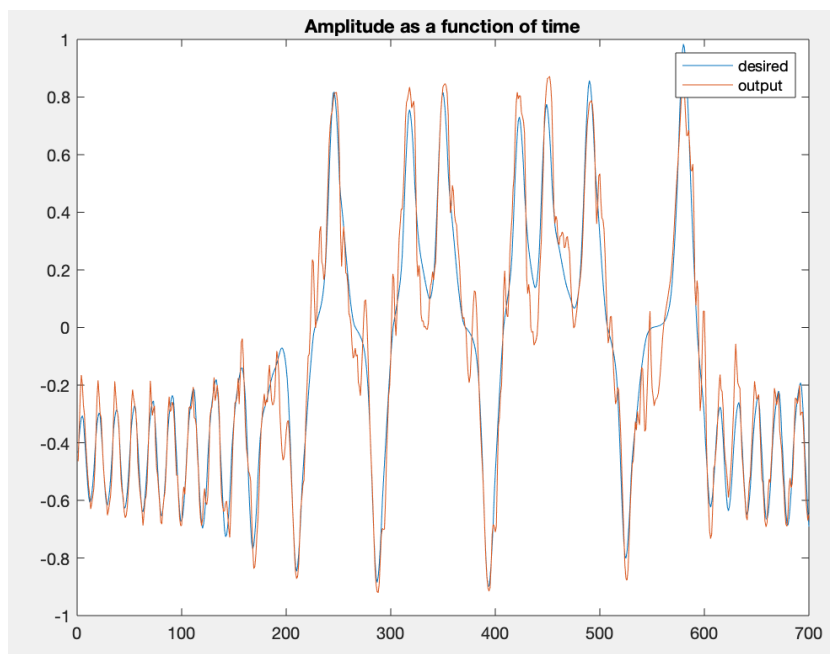
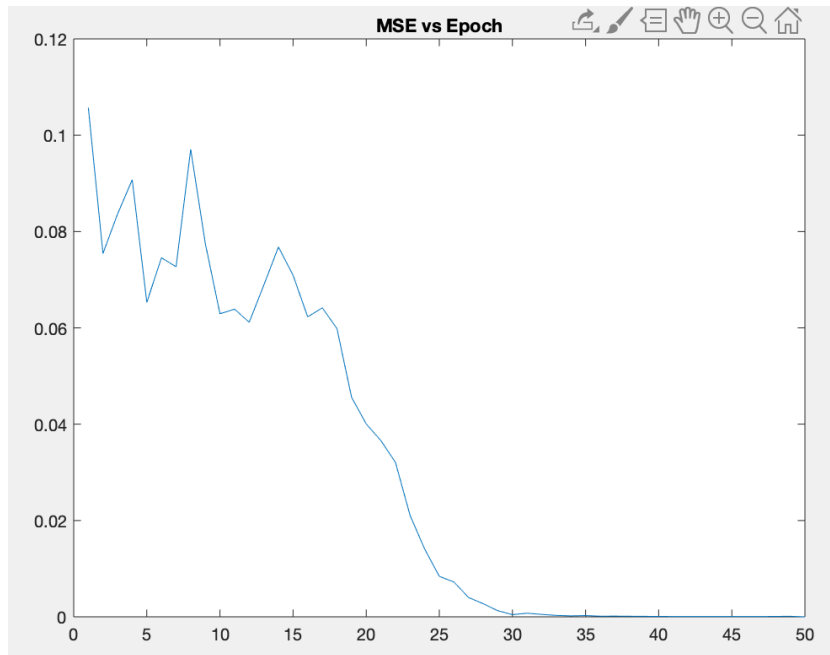


Problem 4.19



Problem 5.10

distance =

-6

finalCenters =

8.1162	0.8339	-7.8138	9.1661	1.8838	17.8138
5.4438	9.1101	5.3253	-3.1101	0.5562	0.6747

finalVariance =

-2.9688	-0.0467	4.6228	-0.0467	-2.9688	4.6228
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distance =

-5

finalCenters =

-8.6551	-0.6535	7.8123	2.0591	18.6551	10.5271
4.2820	9.4990	5.3467	-0.1138	0.7180	-4.3024

finalVariance =

2.7786	0.4221	-3.8573	-3.8711	2.7786	0.1645
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distance =

-4

finalCenters =

0.0377	-8.4547	8.4103	1.5897	18.4547	9.9623
9.5644	4.5293	4.6670	-0.6670	-0.5293	-5.5644

finalVariance =

-0.2201	3.0937	-3.7573	-3.7573	3.0937	-0.2201
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distance =

-3

finalCenters =

-8.3984	-0.6289	8.0382	1.9618	10.6289	18.3984
4.5241	9.4982	5.0126	-2.0126	-6.4982	-1.5241

finalVariance =

2.6845	0.5714	-4.0332	-4.0332	0.5714	2.6845
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distance =

-2

finalCenters =

2.7804	-4.1825	-8.9971	16.3486	8.9002	3.7230
9.2903	8.7572	3.6556	-4.3013	3.9289	-4.3626

finalVariance =

-1.1172	1.6587	1.3949	8.4344	-2.2347	-9.2357
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distance =

-1

finalCenters =

0.1629	-8.0694	1.7535	8.2465	9.8371	18.0694
9.5282	5.1005	-3.9003	4.9003	-8.5282	-4.1005

finalVariance =

-0.1224	3.7299	-3.6253	-3.6253	-0.1224	3.7299
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distance =

0

finalCenters =

-1.1856	8.1963	-8.5991	11.1856	1.8037	18.5991
9.5149	4.9669	4.2328	-9.5149	-4.9669	-4.2328

finalVariance =

0.7509	-3.8411	2.8029	0.7509	-3.8411	2.8029
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distance =

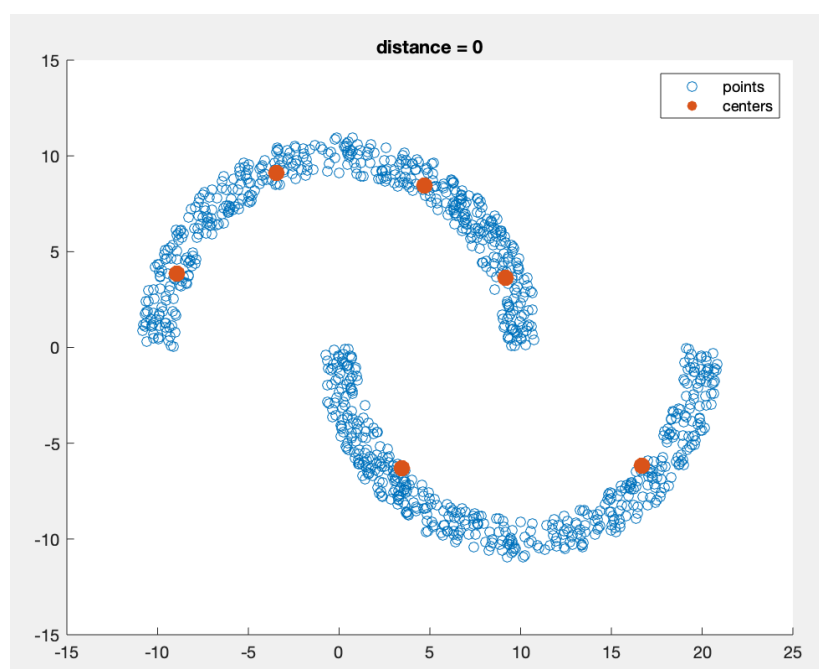
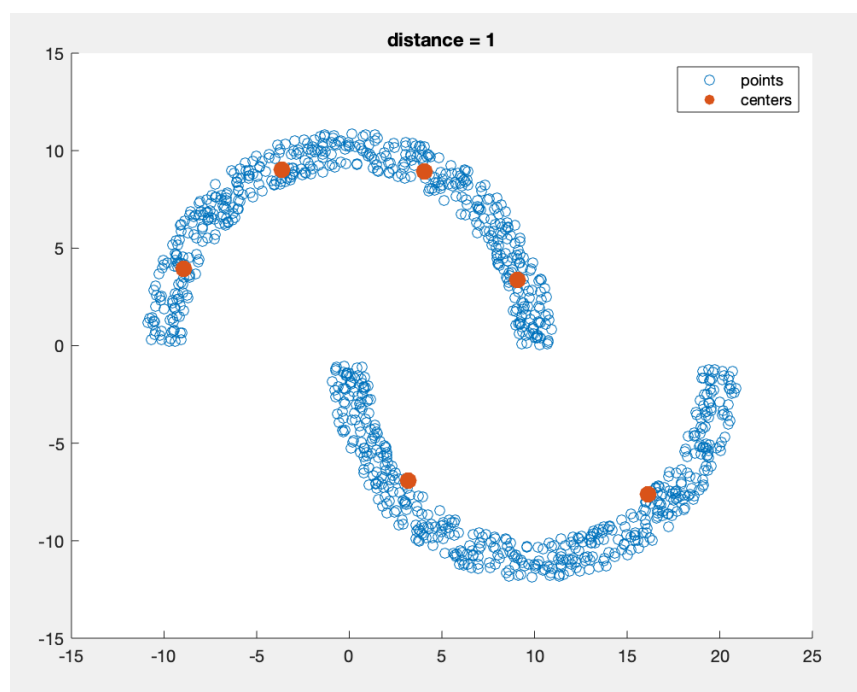
1

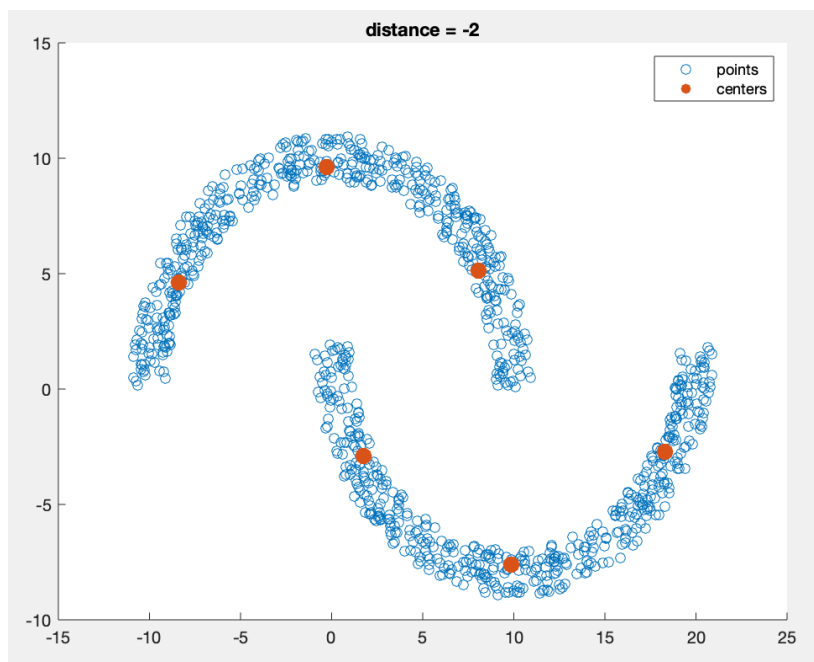
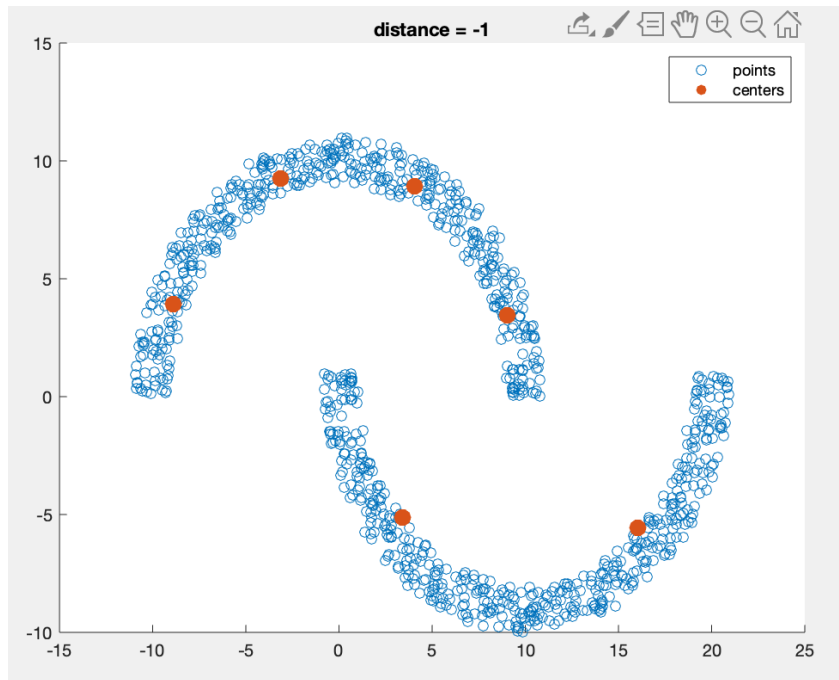
finalCenters =

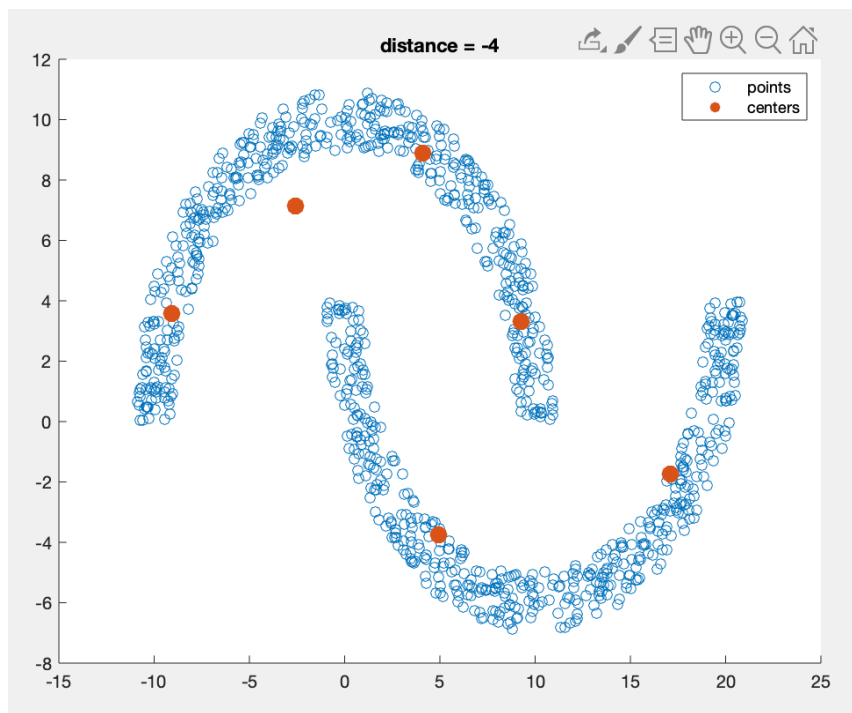
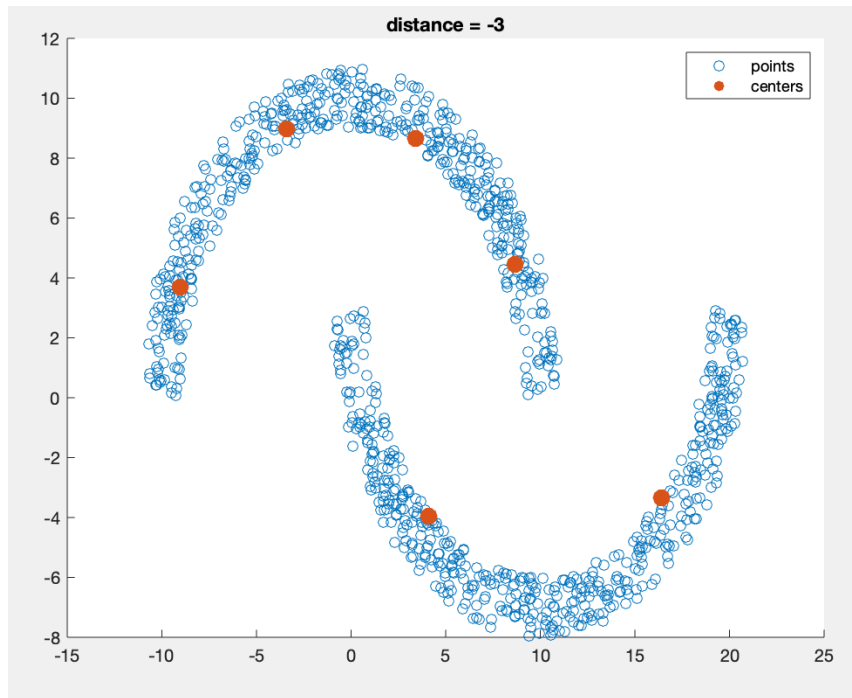
8.7253	1.0762	-7.8154	9.6233	18.0296	1.5297
4.1182	9.4639	5.2469	-10.5434	-5.9766	-5.4497

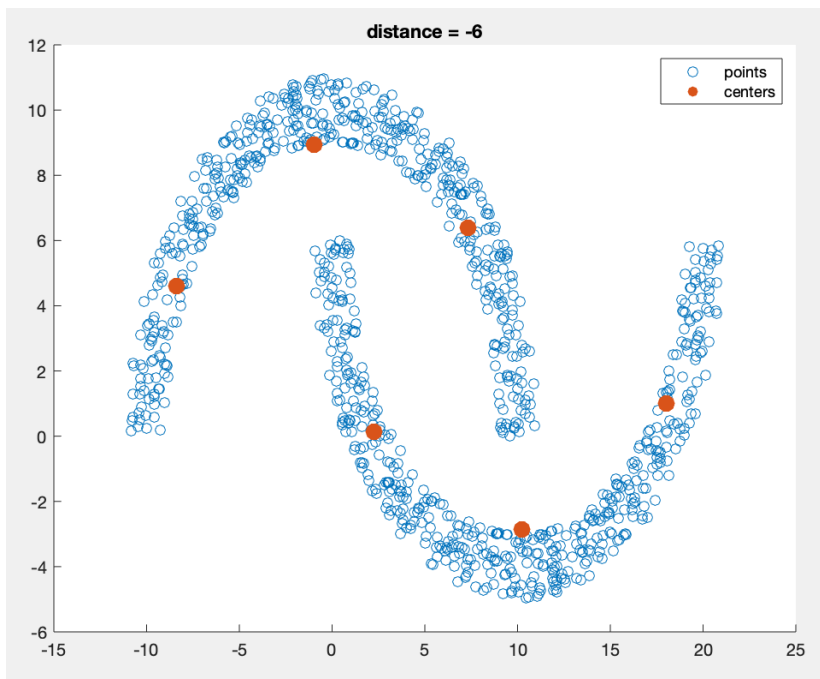
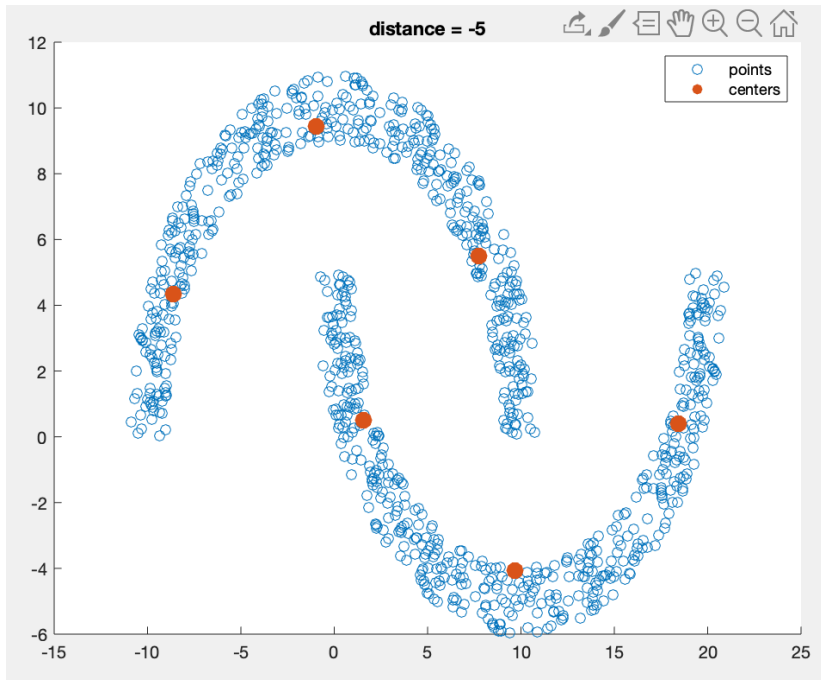
finalVariance =

-2.7562	-0.7907	4.6137	-0.3046	4.0017	-3.5045
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As the separation between moons decreases, the centers tend to exist ‘outside’ of the moons in-between regions as the points associated with each cluster increasingly come from different moons.

Problem 5.12

