EXPERIMENT 10:

```
import math

X = [1, 2, 3, 8, 9, 10]

# Initial parameters
mu1, mu2 = 2, 9
sigma1 = sigma2 = 1
pi1 = pi2 = 0.5

def gauss(x, mu, sigma):
    return math.exp(-(x-mu)*2/(2*sigma*2)) / (sigma*math.sqrt(2*math.pi))

for _ in range(10):
    # E-step
    r1 = [pi1*gauss(x,mu1,sigma1) for x in X]
    r2 = [pi2*gauss(x,mu2,sigma2) for x in X]
    s = [r1[i]+r2[i] for i in range(len(X))]
    r1 = [r1[i]/s[i] for i in range(len(X))]
    r2 = [r2[i]/s[i] for i in range(len(X))]

    # M-step
    mu1 = sum(r1[i]*X[i] for i in range(len(X))) / sum(r1)
    mu2 = sum(r2[i]*X[i] for i in range(len(X))) / sum(r2)
    pi1 = sum(r1)/len(X)
    pi2 = sum(r2)/len(X)

print("Cluster Means:", mu1, mu2)
```

Output

```
Cluster Means: 2.0000000419034833 8.999999958096515

=== Code Execution Successful ===
```