Value of p_on = **0.6**

Minimum value of p_error = **0.1538**

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Details

Editor - C:\Users\Sharmistha Gupta\Desktop\mat

maths_midsem.m

```
1 -  p_on = 0.6
2    %1
3 -  x1 = [-4:.1:4];
4 -  y1 = normpdf(x1,1,1)
5 -  plot(x1,y1)
6 -  hold on
7    %2
8 -  x2 = [-4:.1:4];
9 -  y2 = normpdf(x2,-1,1)
10 - plot(x2,y2)
11
12   %3
13 - x3 = [-4:.1:4];
14 - y3 = y1 * p_on
15 - plot(x3,y3)
16
17   %4
```

Figure 1

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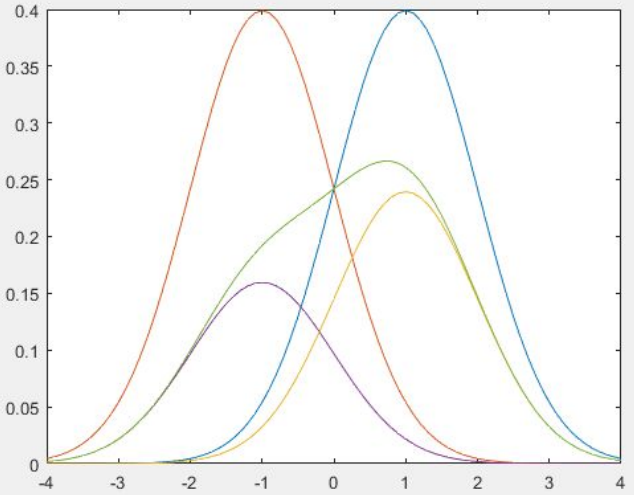

Workspace

Name	Value
a	0.1388
ans	0.1388
b	37
c	1x81 double
indexmin	2
p	[0.3269,0.3173,0.3269]
p1	[0.1151,0.1587,0.2119]
p2	[0.7881,0.8413,0.8849]
p_error	1x81 double
p_off	0.6000
p_on	0.6000
x1	1x81 double
x2	1x81 double
x3	1x81 double
x4	1x81 double
x5	1x81 double
xmin	0.1000
y	1x81 double

Command Window

```
Columns 61 through 75

   0.1470    0.1320    0.1175    0.1035    0.0903    0.0781    0.0668    0.0566    0.0475    0.0394    0.0324    0.0264    0.0213    0.0170    0.0134

Columns 76 through 81

   0.0105    0.0082    0.0063    0.0048    0.0036    0.0027

>>
```

script | Ln 1 | Col 11

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Details

Editor - C:\Users\Sharmistha Gupta\Desktop\maths_midsem.m

maths_midsem.m

```
28      hold off
29      %}
30
31      %p_error
32 -    c = [-4:0.1:4]
33 -    p_error = qfunc(c+1)*(1-p_on) + (1-qfunc(c-1))*p_on
34 -    [a,b] = min(p_error);
35 -    ans = a;
36 -    ans
37 -    plot(c,p_error)
38
39
40
41      %%%%%%%%%%%%%%%
42      %{
43      p_on = 0.3
44      %1
45      x1 = [-4:.1:4];
```

Figure 1

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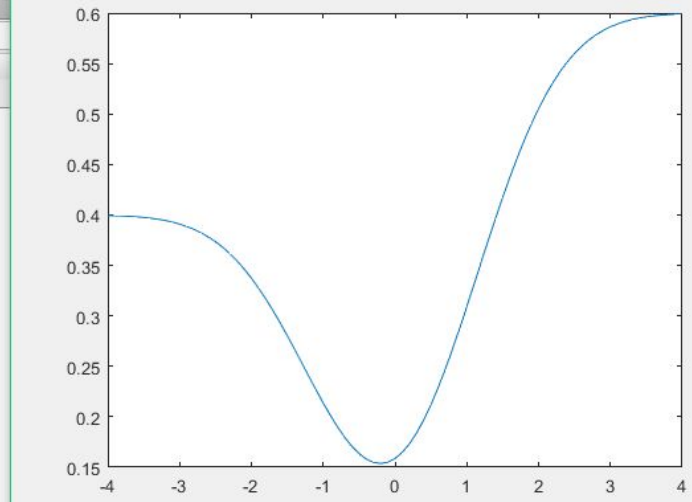

Command Window

```
  Columns 76 through 81

    0.5963    0.5972    0.5979    0.5985    0.5989    0.5992


ans =

    0.1538

fx >>
```

Value of p_on = **0.3**

Minimum value = **0.1338**

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Details

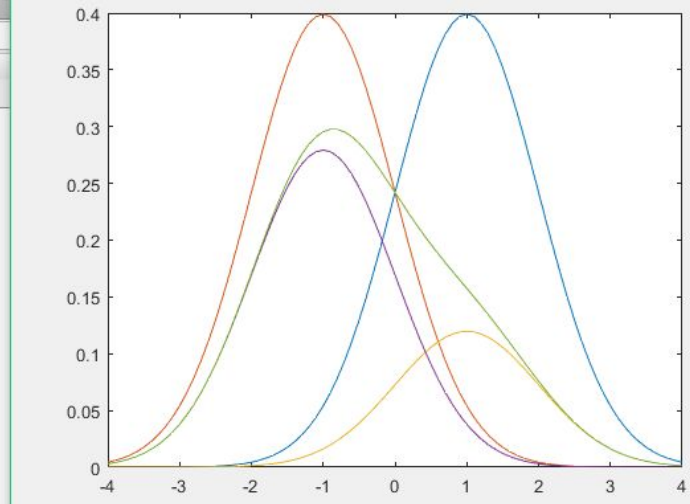
Editor - C:\Users\Sharmistha Gupta\Desktop\maths_midsem.m

maths_midsem.m

```
42  %%%%%%%%%%%%%%%
43
44 -    p_on = 0.3
45      %1
46 -    x1 = [-4:.1:4];
47 -    y1 = normpdf(x1,1,1)
48 -    plot(x1,y1)
49 -    hold on
50      %2
51 -    x2 = [-4:.1:4];
52 -    y2 = normpdf(x2,-1,1)
53 -    plot(x2,y2)
54
55      %3
56 -    x3 = [-4:.1:4];
57 -    y3 = y1 * p_on
58 -    plot(x3,y3)
59
```

Figure 1

File Edit View Insert Tools Desktop Window Help



Command Window

```
Columns 61 through 75

   0.0757    0.0676    0.0599    0.0526    0.0458    0.0395    0.0337    0.0285    0.0239    0.0198    0.0163    0.0133    0.0107    0.0085    0.0067

Columns 76 through 81

   0.0053    0.0041    0.0031    0.0024    0.0018    0.0013

>>
```

script | Ln 70 | Col 1

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Details

Editor - C:\Users\Sharmistha Gupta\Desktop\maths_midsem.m

maths_midsem.m

```
72      %}
73
74      %p_error
75 -    c = [-4:0.1:4]
76 -    p_error = qfunc(c+1)*(1-p_on) + (1-qfunc(c-1))*p_on
77 -    [a,b] = min(p_error);
78 -    ans = a;
79 -    ans
80 -    plot(c,p_error)
81
82      %{
83      %%%%%%%%%%%%%%%%%%%%
84      p_on = 0.5
85      %1
86      x1 = [-4:.1:4];
87      y1 = normpdf(x1,1,1)
88      plot(x1,y1)
89      hold on
```

Figure 1

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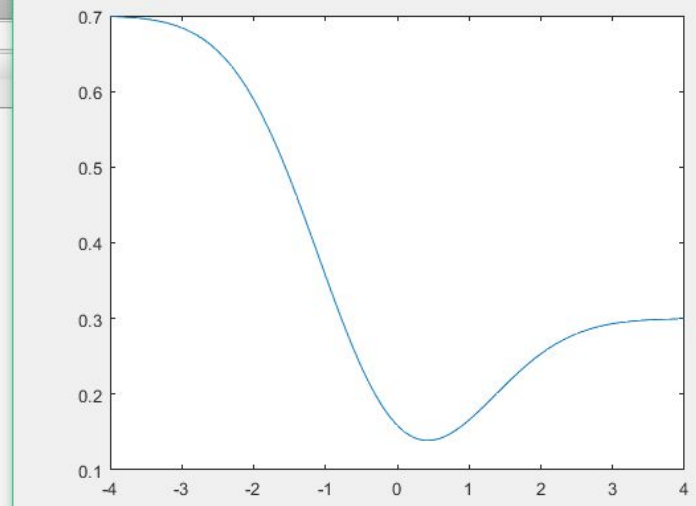

Command Window

```
  Columns 76 through 81

    0.2981    0.2986    0.2990    0.2992    0.2994    0.2996


ans =

    0.1388

fx >>
```

Value of p_on = **0.5**

Minimum value of p_error = **0.1587**

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Details

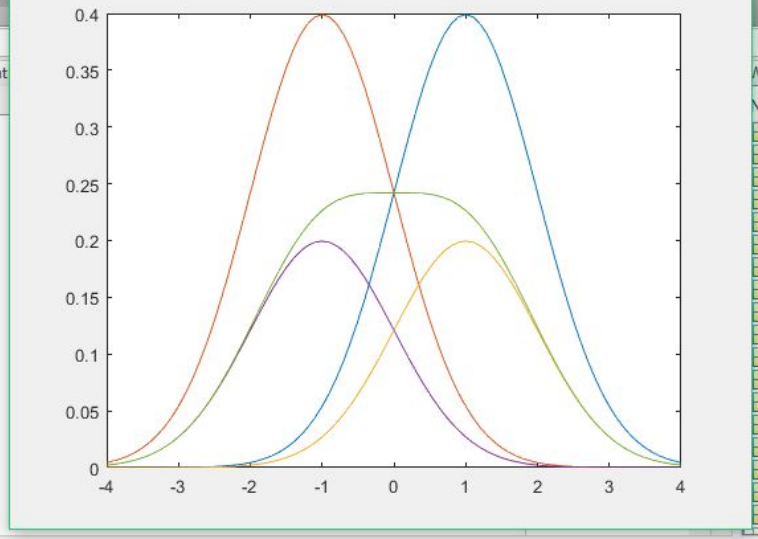
Editor - C:\Users\Sharmistha Gupta\Desktop\mat

maths_midsem.m

```
82      %%%%%%%%%%%%%%%%%%%%
83 -    p_on = 0.5
84      %1
85 -    x1 = [-4:.1:4];
86 -    y1 = normpdf(x1,1,1)
87 -    plot(x1,y1)
88 -    hold on
89      %2
90 -    x2 = [-4:.1:4];
91 -    y2 = normpdf(x2,-1,1)
92 -    plot(x2,y2)
93
94      %3
95 -    x3 = [-4:.1:4];
96 -    y3 = y1 * p_on
97 -    plot(x3,y3)
98
99      %4
```

Figure 1

File Edit View Insert Tools Desktop Window Help



Workspace

Name	Value
a	0.1388
ans	0.1388
b	45
c	1x81 double
indexmin	2
p	[0.3269,0.3173,0.3269]
p1	[0.1151,0.1587,0.2119]
p2	[0.7881,0.8413,0.8849]
p_error	1x81 double
p_off	0.6000
p_on	0.5000
x1	1x81 double
x2	1x81 double
x3	1x81 double
x4	1x81 double
x5	1x81 double
xmin	0.1000
y	1x81 double

Command Window

```
Columns 61 through 75

    0.1232    0.1106    0.0983    0.0865    0.0755    0.0652    0.0558    0.0472    0.0396    0.0329    0.0271    0.0220    0.0178    0.0142    0.0112

Columns 76 through 81

    0.0088    0.0068    0.0052    0.0040    0.0030    0.0022

>>
```

script Ln 82 Col 1

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Details

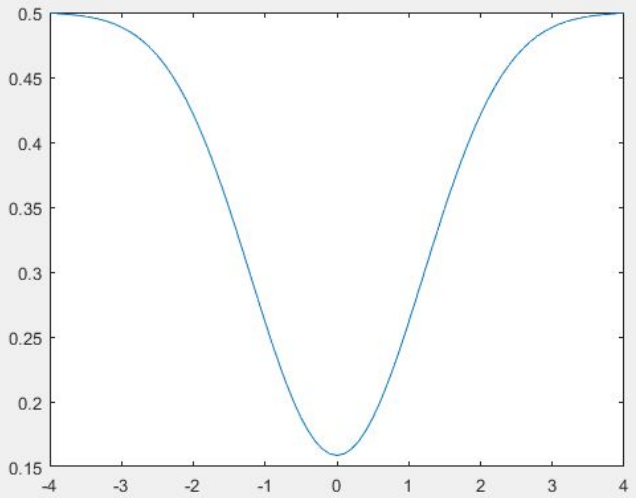
Editor - C:\Users\Sharmistha Gupta\Desktop\maths_midsem.m

maths_midsem.m

```
109     hold off
110     %}
111
112
113     %p_error
114     %p_error
115 -   c = [-4:0.1:4]
116 -   p_error = qfunc(c+1)*(1-p_on) + (1-qfunc(c-1))*p_on
117 -   [a,b] = min(p_error);
118 -   ans = a;
119 -   ans
120 -   plot(c,p_error)
121     %%%%%%%%%%%%%%%%%%%%%%%
122     %{
123     p_on = 0.7
124     %1
125     x1 = [-4:.1:4];
126     y1 = normpdf(x1,1,1)
```

Figure 1

File Edit View Insert Tools Desktop Window Help



Command Window

```
  Columns 76 through 81

    0.4969    0.4977    0.4983    0.4987    0.4991    0.4993


ans =

    0.1587

>>
```

Value of p_on = **0.7**

Minimum value of p_error = **0.1388**

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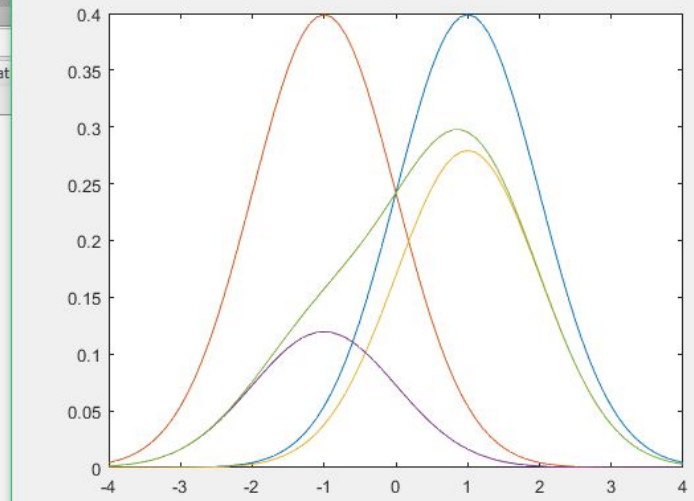
maths_midsem.m

```
122 -   %}
123 -   p_on = 0.7
124 -   %1
125 -   x1 = [-4:.1:4];
126 -   y1 = normpdf(x1,1,1)
127 -   plot(x1,y1)
128 -   hold on
129 -   %2
130 -   x2 = [-4:.1:4];
131 -   y2 = normpdf(x2,-1,1)
132 -   plot(x2,y2)
133
134 -   %3
135 -   x3 = [-4:.1:4];
136 -   y3 = y1 * p_on
137 -   plot(x3,y3)
138
139 -   %4
```

Figure 1

File Edit View Insert Tools Desktop Window Help



Workspace

Name	Value
a	0.1587
ans	0.1587
b	41
c	1x81 double
indexmin	2
p	[0.3269,0.3173,0.3269]
p1	[0.1151,0.1587,0.2119]
p2	[0.7881,0.8413,0.8849]
p_error	1x81 double
p_off	0.6000
p_on	0.7000
x1	1x81 double
x2	1x81 double
x3	1x81 double
x4	1x81 double
x5	1x81 double
xmin	0.1000
y	1x81 double

Command Window

```
Columns 61 through 75

   0.1707    0.1535    0.1366    0.1205    0.1052    0.0909    0.0778    0.0660    0.0554    0.0460    0.0378    0.0308    0.0248    0.0198    0.0157

Columns 76 through 81

   0.0123    0.0095    0.0073    0.0055    0.0042    0.0031

>>
```

script Ln 151 Col 5

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maths_midsem.m

```
144
145      %5
146      x5 = [-4:.1:4];
147      y5 = y3 + y4
148      plot(x5,y5)
149      hold off
150      %}
151      %p_error
152 -    c = [-4:0.1:4]
153 -    p_error = qfunc(c+1)*(1-p_on) + (1-qfunc(c-1))*p_on
154 -    [a,b] = min(p_error);
155 -    ans = a;
156 -    ans
157 -    plot(c,p_error)
158
159      %}
160
161
```

Figure 1

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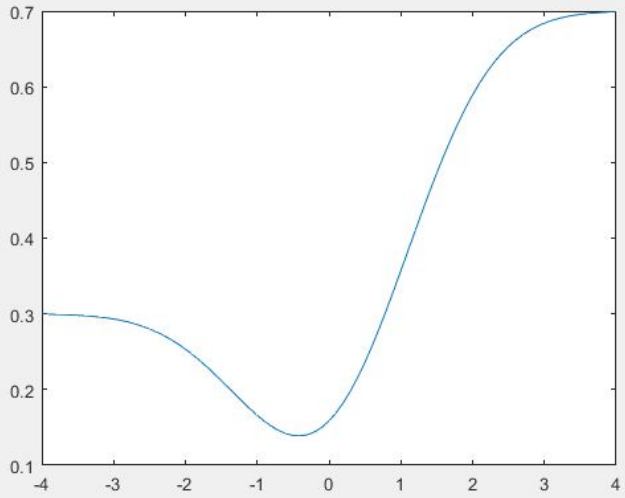

Command Window

```
  Columns 76 through 81

    0.6957    0.6967    0.6976    0.6982    0.6987    0.6991


ans =

    0.1388

fx >>
```