1. $Pr(class = +1 | a > 10) = \frac{1}{2}$

$Pr(class = -1 | a > 10) = \frac{1}{2}$

$g = 1 - (\frac{1}{2})^2 - (\frac{1}{2})^2 = \frac{1}{2}$

2. $Pr(class = +1 | a \le 5) = 1$

$Pr(class = -1 | a \le 5) = 0$

$g = 1 - 1^2 - 0^2 = 0$

3. Based on Problem 2.

$g(a \le 5) = 0$

$g(a > 5) = 1 - (\frac{1}{3})^2 - (\frac{2}{3})^2 = \frac{4}{9}$

$P(a \le 5) = \frac{1}{4}$

$P(a > 5) = \frac{3}{4}$

$E = \frac{1}{4} \times 0 + \frac{3}{4} \times \frac{4}{9} = \frac{1}{3}$

4.

Sample Number	class
1	-1
2	+1
3	+1
4	-1
5	-1
6	-1
7	-1
8	-1