**Week 10 Questions**

**Question 1**

1. P(X=0.5) = 0 since X is continuous
2. P(0.25 <= x <= 0.5) = P(x<0.5) – P(x<0.25)

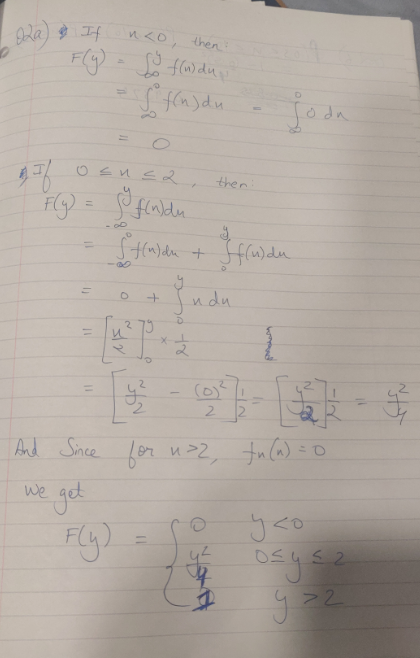
= 0.5 – 0.25

= 0.25

1. P(-1 <= x <= 0.5) = P(x <= 0.5)

= 0.5

**Question 2**

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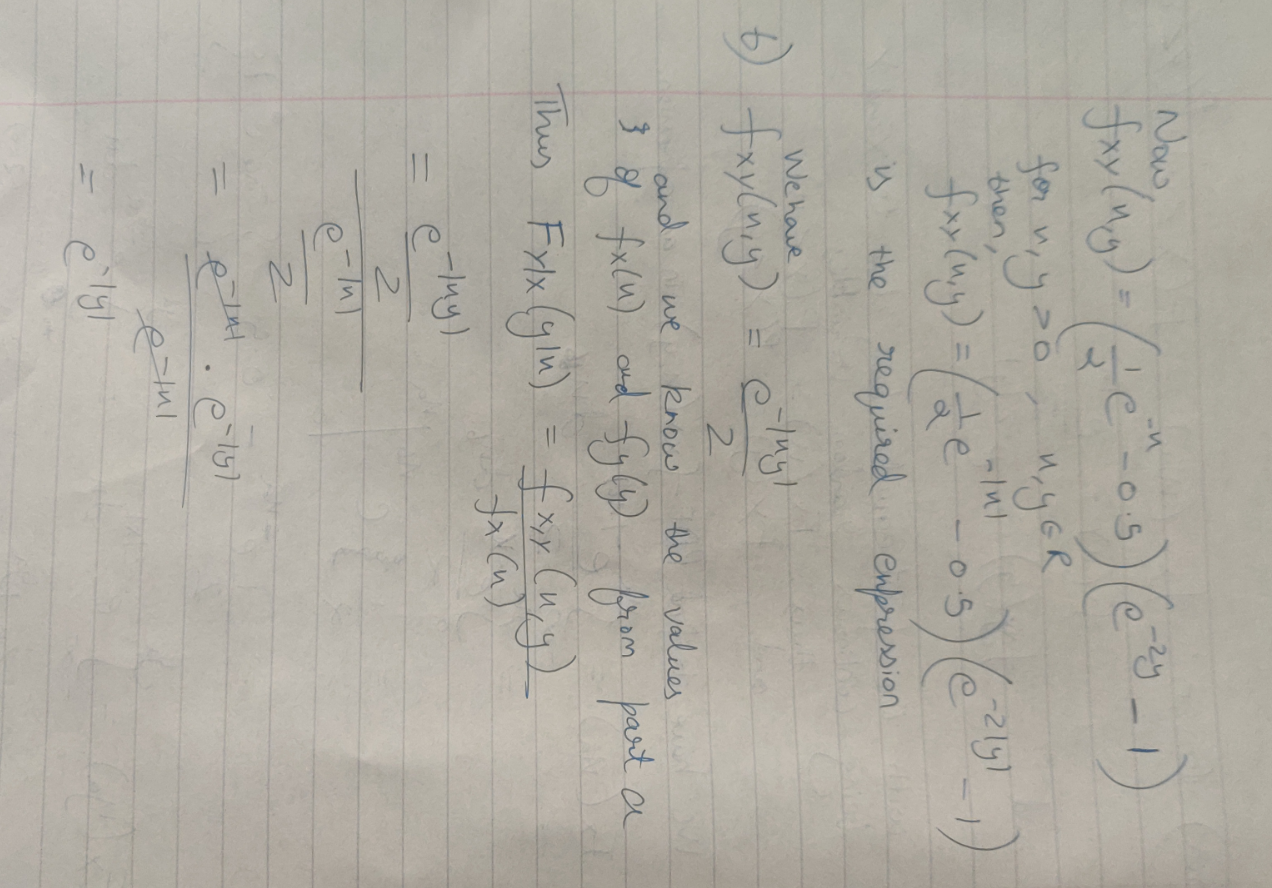
**A piece of paper with writing on it

Description automatically generated with medium confidence**

**Question 3**

**Text, letter

Description automatically generated**

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**A picture containing calendar

Description automatically generated**

**Question 4**

1. The expression is :

A white surfboard with blue writing

Description automatically generated with medium confidence

1. The difference between gradient ascent and gradient descent is primarily that ascent is the process of maximizing while descent is the process of minimizing. Thus we take the loss function for gradient descent and multiply it by -1, we can then look for a maximum value. Then we can apply the same steps for the gradient ascent using the above function to obtain a value of (theta) which maximizes the PDF of training data.