Image Features I

remember that sobel always give you two images one for absolute, and the other for the phase

1. Use the shown Sobel Operator to calculate the edge strength and direction for the shown image. Comment on your results.

steps of solution is as follow:
1- get I * Gx
2- get I * Gy
3- add them together to get the gradient absolute value,
4- to evaluate theta we just divide I*Gy by I*GX and get tan inverse for the result

-1	0	+1
-2	0	+2
-1	0	+1

Gx

+1	+2	+1
0	0	0
-1	-2	-1

Gy

$$|G| = |Gx| + |Gy|$$

$$\text{theta} = \arctan(Gy/Gx)$$

i,j	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	100	100	100	100	100	100	100	200	0
2	0	10	50	0	0	0	0	0	200	0
3	0	10	0	50	0	0	0	0	200	0
4	0	10	10	0	50	0	0	0	200	0
5	0	10	0	0	0	50	0	0	200	0
6	0	10	0	0	0	0	50	0	200	0
7	0	10	0	0	0	0	0	0	200	0
8	0	10	10	10	10	10	10	10	200	0
9	0	0	0	0	0	0	0	0	0	0

2. How would you suppress short edge chains in the output of Canny edge detector?