1. Construct the decision rule according to this classification boundary. How would you classify a new observation that has x1=6x1=6 and x2=10x2=10?

A-orange

1. What size is the margin here?

2 units

1. Which observations receive a penalty? Which observations are the support vectors?

6,7,8,9,10

1. What is the total penalty here?

11.5

1. Can I choose a bigger margin if my total allowable penalty is 6?

No, the current margin is > 6, so it wont be possible to choose a greater margin

1. Are the data separable? If so, what are the support vectors?

Yes, support vectors are 8,9