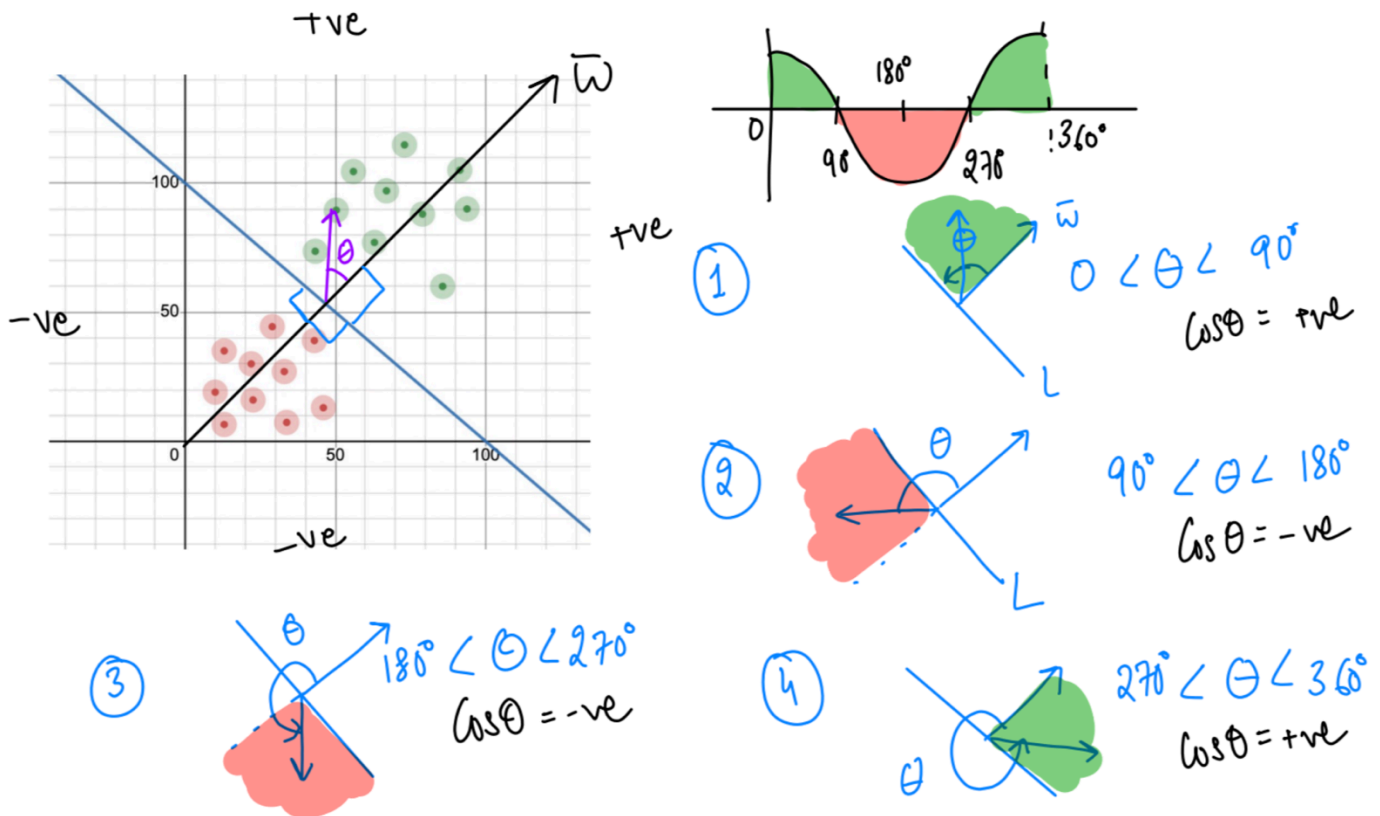


- **Points lying on the positive and negative sides of Hyperplane**

- The points lying in the positive half-space belong to class 1
- And points belonging to the negative half-space belong to class -1



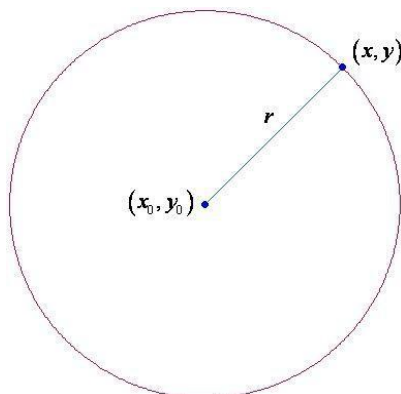
- **Updating weight vector:**

$$w_{new} = w_{old} + x * y_i$$

○

- The **equation of a circle** in the x-y plane is given as:  $(x - x_0)^2 + (y - y_0)^2 = r^2$

- where,  $(x_0, y_0)$  are the coordinates of the center of the circle and  $r$  is the radius of the circle.



- Therefore, a circle with the **center at the origin** is given as:  $x^2 + y^2 = r^2$
- Points **inside** the circle give **negative** values when substituted in the circle equation and points **outside** the circle give **positive** values.