

ONLINE MASTERS IN DATA SCIENCE

DSC 255 - MACHINE LEARNING FUNDAMENTALS

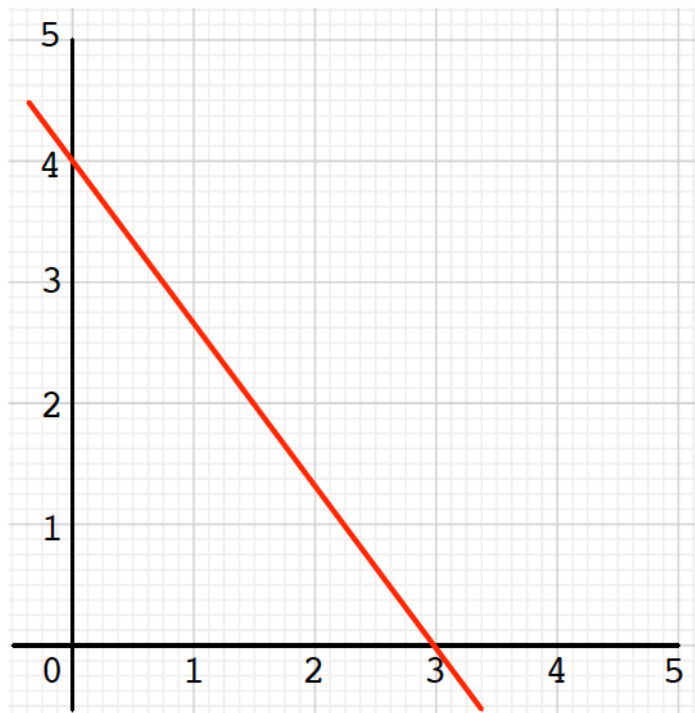
MORE ON POSITIVE SEMIDEFINITE MATRICES

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Example



- What is the formula for this boundary?
- What label would we predict for a new point x ?

Binary classification problem: data $x \in \mathbb{R}^d$ and labels $y \in \{-1, +1\}$

Linear Classifier:

- Parameters: $w \in \mathbb{R}^d$ and $b \in \mathbb{R}$
- Decision boundary $w \cdot x + b = 0$
- On point x , predict label $\text{sign}(w \cdot x + b)$

If the true label on point x is y :

- Classifier correct if $y(w \cdot x + b) > 0$