→ Let $X \neq \phi$ defined by $d : X \times X \longrightarrow R$
$d(x, y) = 0 \quad \forall\, x, y \in X$ is called trivial metric or indiscrete metric.

Pseudo metric : X is a non empty set, d is a function, $d : X \times X \longrightarrow R$ is said to be pseudometric, if

(i) $d(x, y) \geq 0 \quad \forall\, x, y \in X$
(ii) $d(x, x) = 0 \quad \forall\, x \in X$
(iii) $d(x, y) = d(y, x) \quad \forall\, x, y \in X$
(iv) $d(x, z) \leq d(x, y) + d(y, z) \quad \forall\, x, y, z \in X$

Remark : Every metric is a pseudometric but not conversely.

→ Let $X = R$, $d : R \times R \longrightarrow R$ defined by

$d(x, y) = |x^2 - y^2|$

we can show that it is a pseudometric but it is not a metric.

If $d(x, y) = 0 \Rightarrow |x^2 - y^2| = 0$
$\Rightarrow x^2 - y^2 = 0 \Rightarrow x^2 = y^2 \Rightarrow x = \pm y$
ie, if $x = -y$, then also $d(x, y) = 0$
$\Rightarrow d$ is not a metric