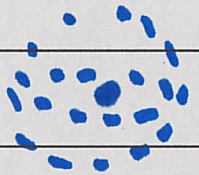
A subset $U \subseteq \mathbb{R}^n$ is <u>open</u> if for each $P = (p_1, \ldots, p_n) \in U$, there is some $r > 0$ for which



$$B_r(P) = \{ X \in \mathbb{R}^n : |X - P| < r \}$$

"ball of radius r at P"

here $|X - P| = \left(\sum_{j=1}^{n} (x_j - p_j)^2 \right)^{1/2}$

<u>Euclidean distance</u> from P to X.