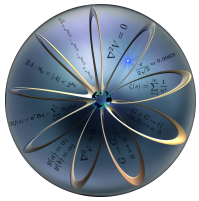

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internal point

Canonical name	InternalPoint
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Definition. Let X be a vector space and $S \subset X$. Then $x \in S$ is called an *internal point* of S if and only if the intersection of each line in X through x and S contains a small interval around x.

That is x is an internal point of S if whenever $y \in X$ there exists an $\epsilon > 0$ such that $x + ty \in S$ for all $t < \epsilon$.

If X is a topological vector space and x is in the interior of S, then it is an internal point, but the converse is not true in general. However if $S \subset \mathbb{R}^n$ is a convex set then all internal points are interior points and vice versa.

References

[1] H. L. Royden. . Prentice-Hall, Englewood Cliffs, New Jersey, 1988