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**Boundary Return Probabilities of**

**Higher Dimensional Random Walks**

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Random walks serve as useful tools in many fields of research, especially in theoretical physics. A random walk can occur in any number of mathematical dimensions. The first half of this paper focuses on random walks in two dimensions, while the remaining half focuses on three or more dimensions, specifically when a boundary with a given radius is introduced as the origin instead of a single point like with many random walk problems. The return probabilities for random walks with different sized boundaries are investigated. It is discovered that the probability of return is based on a power law.