

AI1110

Assignment 8

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Outline

1 Question

2 Solution

question 2.20

A player tosses a penny from a distance onto the surface of a square table ruled in 1 in. squares. If the penny is $\frac{3}{4}$ in. in diameter, what is the probability that it will fall entirely inside a square (assuming that the penny lands on the table).

Solution

here as long as the centre is r units away from the sides of the square it will stay inside the square and that is our question requirement. so there's a small square of side length $d \hat{=} 2r$ in each square where the center can fall without the coin extending beyond the grid square.

calculations

$$= \frac{(1 - 2r)^2}{1^2} \quad (1)$$

$$= \left(1 - \frac{3}{4}\right)^2 \quad (2)$$

$$= \frac{1}{16} \quad (3)$$