

Name:.....

A farmer owns a perfectly square field and wants to estimate its area. When he measures one side of his field, he knows (confirmed by a statistician friend) that the measurement error follows a normal distribution with zero mean and standard deviation σ . He decides to take two measurements, which he assumes to be independent, and seeks which estimator to choose from the two measurements.

He has three ideas for estimators based on these two measurements:

- Hint: $E(X^2) = V(X^2) + E(X)^2$ and $V(X^2) = 2(\sigma^4) + 2\mu\sigma^2$

This image shows a single sheet of white paper with ten horizontal rows of small black dots, commonly used for handwriting practice or as a template for lined paper. The dots are arranged in straight, parallel lines across the width of the page.

[illegible]

Exercise 02:

Calculate the Fourier transforms of the following discrete signals :

a- $x(n) = u(n) - u(n - 6)$

b- $x(n) = 2^n u(-n)$

[illegible]

