

Central Limit Theorem



THE HOUSE EXAMPLE



The Problem



Suppose existing houses for sale average 2200 square feet in size, with a standard deviation of 250 ft squared.

What is the probability that a randomly selected sample of **16 houses** will average **at least 2300 ft squared**?

The Solution



Since we are given a sample size of 16, we can use the Central Limit Theorem and calculate:

$$P(\bar{X} \geq 2300)$$

$$= P \{ z \geq (2300-2200)/(250/\text{square root } 16) \}$$

$$= P (z \geq 1.60) = .0548$$

Get this by
.5 - .4452
from table 4
for $z = 1.60$

Mean =
2200

$X = 2300$

Looking for
this area

