

Name: _____ Hour: _____ Date: _____

What was the average for the Chapter 6 test?



How did the Chapter 6 test go? Today, we will be taking a **sample** from a **population**. We will use the average from the **sample** to estimate the average for the **population**.

Let's start with a very simple example. My 5th hour is very small. There were only 4 students who took the chapter 6 test. Their scores were: 60 70 80 90.

1. Make a dotplot of the population distribution.
2. Take a sample of any 2 of the scores. Find the mean of your sample.
3. Figure out all of the possible samples of size 2. Calculate a sample mean for each sample of 2.
4. Make a dotplot using each of the means you found in #3.
5. What is the mean of the population? Label this on the dotplot above.

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What is a Sampling Distribution? Day 1

Important ideas:

Check Your Understanding

The James family has five children: Jocelyn (age 8), Alyse (age 8), Michael (age 14), Erica (age 16), and Sarah (age 18).

- a. Complete the table by listing the 10 possible samples of size $n = 2$ from this population and calculate the sample mean age for each sample. The first column is completed for you.

Sample $n = 2$	J, A									
\bar{x}	8									

- b. Create a sampling distribution of the sample mean age of samples of size 2.
- c. What is the mean of the sampling distribution of the sample mean? What is the mean of the population?
- d. Is the sample mean an unbiased estimator of the population mean? Justify your answer.
- e. Suppose we had taken samples of size 3 instead of size 2. Would the variability of the sampling distribution of the sample mean be larger, smaller, or about the same? Justify your answer.