

TRANSFORMING DATA BY MULTIPLICATION Another type of transformation you can apply to a data set is to *multiply* each data value by the same constant.

KEY CONCEPT

For Your Notebook

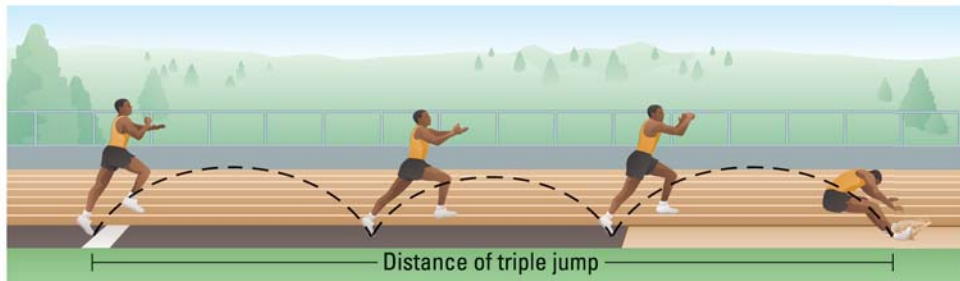
Multiplying Data Values by a Constant

When each value of a data set is multiplied by a constant, the new mean, median, mode, range, and standard deviation can be found by multiplying each original statistic by the same constant.

EXAMPLE 2 Multiply data values by a constant

OLYMPICS The data set below gives the winning distances (in meters) in the men’s Olympic triple jump events from 1964 to 2004. Find the mean, median, mode, range, and standard deviation of the distances in meters and of the distances in feet. (*Note:* 1 meter \approx 3.28 feet.)

16.85, 17.39, 17.35, 17.29, 17.35, 17.26, 17.61, 18.17, 18.09, 17.71, 17.79



Solution

	Distances in meters	Distances in feet
Mean	17.53	$3.28(17.53) \approx 57.50$
Median	17.39	$3.28(17.39) \approx 57.04$
Mode	17.35	$3.28(17.35) \approx 56.91$
Range	1.32	$3.28(1.32) \approx 4.33$
Standard deviation	0.37	$3.28(0.37) \approx 1.21$

GUIDED PRACTICE for Examples 1 and 2

- ASTRONAUTS** The Manned Maneuvering Unit (MMU) is equipment that latches onto an astronaut’s space suit and enables the astronaut to move around outside the spacecraft. The MMU weighs about 300 pounds on Earth. Find the mean, median, mode, range, and standard deviation of the weights of the astronauts in Example 1 with their space suits and MMUs.
- WHAT IF?** In Example 2, find the mean, median, mode, range, and standard deviation of the distances in yards. (*Note:* 1 meter \approx 1.09 yards.)