Problem of the Week
Problem B and Solution
How Tall are They, Really?

Problem

There were 12 players on the Canadian 2020 Olympic Women's Basketball Team. The table below shows the height of each player.

Name	Height
Natalie Achonwa	6 feet, 3 inches
Kayla Alexander	6 feet, 4 inches
Laeticia Amihere	6 feet, 2 inches
Miranda Ayim	6 feet, 3 inches
Bridget Carleton	6 feet, 1 inch
Shay Colley	5 feet, 8 inches
Aaliyah Edwards	6 feet, 3 inches
Nirra Fields	5 feet, 7 inches
Kim Gaucher	6 feet, 1 inch
Kia Nurse	6 feet, 0 inches
Shaina Pellington	5 feet, 8 inches
Nayo Raincock-Ekunwe	6 feet, 2 inches

Source: https://www.basketball.ca/team-canada-en/tokyo-2020

(a) Create a stem-and-leaf plot to represent the heights in feet and inches of the players on the team. Use the number of feet as the stems, and the number of inches as the leaves.

(b) Using your stem-and-leaf plot, find the median height of the players on the team.

(c) Convert all the heights to inches, and then calculate the mean height of the players on the team. Recall that 1 foot = 12 inches.

For example, 6 feet is equal to $6 \times 12 = 72$ inches, so a height of 6 feet, 3 inches is equal to $72 + 3 = 75$ inches.

(d) Assume that the mean height of a Canadian woman is 5 feet, 4 inches. How much taller, on average, are the players on this team?

Solution

(a) The stem-and-leaf plot is shown below.

stem	leaf
5	7 8 8
6	0 1 1 2 2 3 3 3 4

key: 6 | 3 = 6 feet, 3 inches

(b) The median is halfway between 6 feet, 1 inch and 6 feet, 2 inches, which is 6 feet, 1.5 inches.

(c) The table below shows all the heights converted to inches.

Name	Height (feet, inches)	Height (inches)
Natalie Achonwa	6 feet, 3 inches	$72 + 3 = 75$
Kayla Alexander	6 feet, 4 inches	$72 + 4 = 76$
Laeticia Amihere	6 feet, 2 inches	$72 + 2 = 74$
Miranda Ayim	6 feet, 3 inches	$72 + 3 = 75$
Bridget Carleton	6 feet, 1 inch	$72 + 1 = 73$
Shay Colley	5 feet, 8 inches	$60 + 8 = 68$
Aaliyah Edwards	6 feet, 3 inches	$72 + 3 = 75$
Nirra Fields	5 feet, 7 inches	$60 + 7 = 67$
Kim Gaucher	6 feet, 1 inch	$72 + 1 = 73$
Kia Nurse	6 feet, 0 inches	72
Shaina Pellington	5 feet, 8 inches	$60 + 8 = 68$
Nayo Raincock-Ekunwe	6 feet, 2 inches	$72 + 2 = 74$

The mean is found by adding up all the heights in inches, and dividing by 12.

$$75 + 76 + 74 + 75 + 73 + 68 + 75 + 67 + 73 + 72 + 68 + 74 = 870$$

Since $870 \div 12 = 72.5$, the mean height is 72.5 inches, or 6 feet, 0.5 inches.

(d) We can first convert 5 feet, 4 inches to inches. 5 feet is equal to $5 \times 12 = 60$ inches, so a height of 5 feet, 4 inches is equal to $60 + 4 = 64$ inches.

The mean height of the players on the team is 72.5 inches. Since $72.5 - 64 = 8.5$, that means on average, the players on the team are 8.5 inches taller than the average Canadian woman.