Answer on Question #66321 – Math – Statistics and Probability

Question

Evaluate #2 and #3 in light of #1 being true.

1.It's been reported that the mean height for an American female is 64 inches with a standard deviation of 3 inches.
2. Since the mean height equals the median height and the interquartile range = 1.3 standard deviations, we can safely assume the data normally distributed.
3. Therefore, the percentage of women greater than 72 inches would be less than ½%.

Solution

2. For the normal distribution $IQR = 1.349\sigma$. So the distribution of data is approximately normal.

3. $P(X > 72) = P\left(Z > \frac{x-\mu}{\sigma} = \frac{72-64}{3}\right) = P(Z > 2.67) = 1 - P(Z < 2.67) =$
$= 1 - 0.9962 = 0.0038 = 0.38\% < 0.5\%.$