

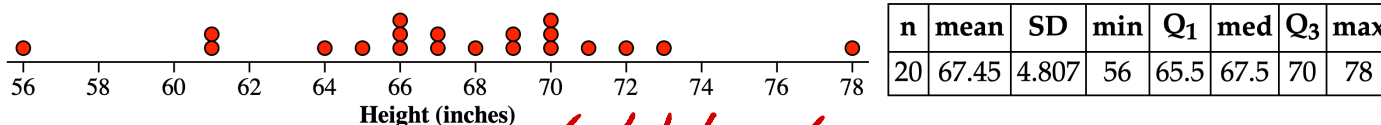


Where Do I Stand?

How does my height compare with other AP Stats students?



The dotplot below represents a random sample of the heights of 20 AP Stats students.



1. Describe the distribution.

SOCV + context

The shape of the distribution of heights is fairly symmetric and bimodal. There are outliers at 56 + 78 inches. The mean is 67.45 inches and the standard deviation is 4.807 inches.

2. a. Arianna is 65 inches tall. What percent of the heights are less than or equal to 65?

$5/20 = 0.25$ 25% "at" the 25th percentile

b. What is your height? What percent of the heights are less than or equal to your height?

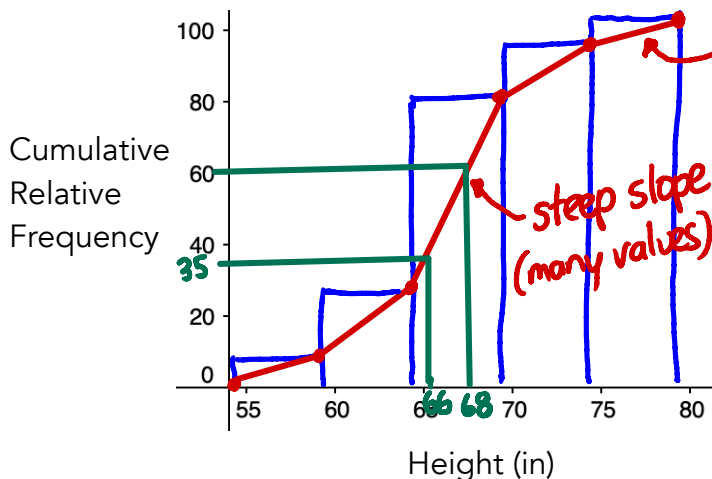
72 inches. $18/20 = 0.90$ 90%.

3. Complete the table.

Height	Frequency	Relative Frequency (%)	Cumulative Relative Freq. (%)
56-60	1	$1/20 = 5\%$	5%
61-65	4	$4/20 = 20\%$	25%
66-70	11	$11/20 = 55\%$	80%
71-75	3	$3/20 = 15\%$	95%
76-80	1	$1/20 = 5\%$	100%

← always ends at 100%

4. Use the values in the table to create a cumulative relative frequency graph.



a. Mrs. Gallas is 66 inches tall. Estimate and interpret her cumulative relative frequency.

35% of students are at or below Mrs. Gallas' height.

b. Estimate and interpret the height that has 60% cumulative relative frequency.

68 inches. 80% of student heights are at or below 68 inches.

Lesson 2.1 – Percentile

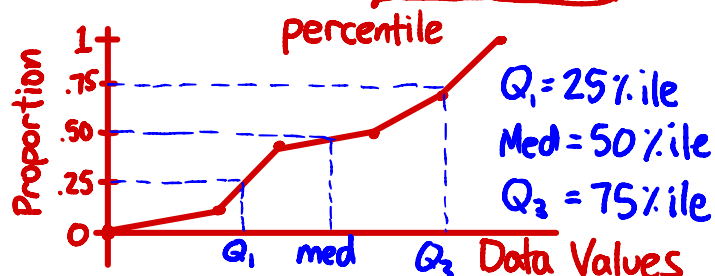
QuickNotes:

LT#1 Percentile

The p^{th} percentile is the value that has $p\%$ of the data less than or equal to it.

* "at" a certain percentile

LT#2 Cumulative Relative Frequency Graph

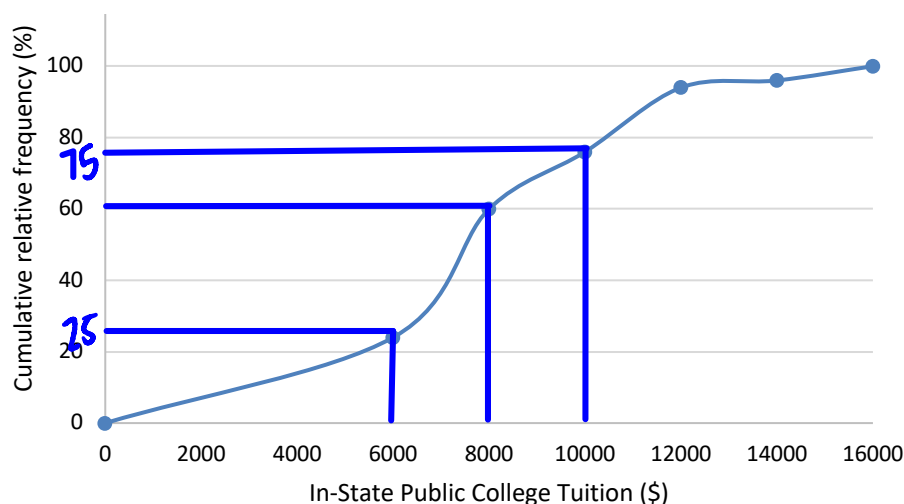


Check Your Understanding:

1. According to a recent article at Insider.com, the state of Pennsylvania was at the 82nd percentile for Pre-K to 12th grade education rating and was at the 2nd percentile for higher education rating. Explain what these values mean.

82% of states have a Pre-K to 12th grade rating less than or equal to Pennsylvania. 2% of states have a higher education rating less than or equal to Pennsylvania.

2. The graph displays the cumulative relative frequency of the average cost of in-state public college tuition for each of the 50 states.



- a. About what percent of states have in-state public college tuition less than or equal to \$8000? More than \$8000?

About 60% of states have tuition less than or equal to \$8,000.
About 40% of states have tuition more than \$8,000.

- b. Estimate Q_1 , Q_3 , and the IQR of the distribution of in-state public tuition.

$$Q_1 \approx \$6,000 \quad IQR = Q_3 - Q_1 = 10,000 - 6,000 = \$4,000$$

$$Q_3 \approx \$10,000$$