Percentiles

- Percentile is a measure of position

- It RANKS a data vale as a position out of 100, hence **Percent**ile

- It tells you what percentage of the population is equal to or below a data value

Ex: On the provincial math exam, your percentile rank is 71 (this will appear on your official transcript). It means you did equal to or better than 71% of the province who wrote that exam.

Finding the Percentile Rank:

$$\text{Percentile Rank of 'x'} = \frac{(\#\text{ of data values LESS than x} + \frac{(\#of\ data\ values\ equal\ to\ x)}{2})}{\text{total \# of data values}} \times 100$$

NB: If you get a decimal answer...ROUND UP

Ex 36.1 BECOMES 37

Ex. A distribution containing 158 values

6, 7, 8, ..., 19, 21, 21, 21, 24, ..., 50, 51, 52, 55, 56, 56, 57, 58, ..., 89, 89, 90

61 values 41 values 36 values

Question: What is the percentile rank of the value 56?

$$\text{Percentile of 56} = \frac{(114+\frac{2}{2})}{158} \times 100 = \frac{114+1}{158} \times 100 = 72.78$$

Therefore → Percentile of 56 = 73rd percentile

Finding the data value when the percentile is known:

$$\frac{Percentile}{100} \times \text{total number of values}$$

*This formula will give you the POSITION of the data value, always ROUND DOWN.

Ex: Which value is the 75th percentile

6, 7, 8, ..., 19, 21, 21, 21, 24, ..., 50, 51, 52, 55, 56, 56, 57, 58, ..., 89, 89, 90

61 values 41 values 36 values

$$\frac{75}{100} \times 158 = 118.5 = 118^{th} \text{ number}$$

Find the 118th position in the data group and it will be 58 in this case!

Homework

Textbook 1:

P. 84 # 6, 7 & 8

P. 86 #15 & 16

P. 87 #18