

Lesson 3: Percentile Rank of a Data Value in a Distribution

Each data point has a  $\rightarrow$

Position

Example: Class Marks (%) 64<sup>th</sup> p.

{ 55, 59, 62, 62, 64, 70, 72, 72, 75, 80, 82 }

63% of distribution

Question 1: what's the Percentile Rank of the student who got 72%?

$$R_{100} = \left( \frac{\text{\# of values less than 72} + \frac{\text{\# of values same}}{2}}{\text{total \# of values}} \right) \times 100$$

$$R_{100} = \left( \frac{6 + \frac{2}{2}}{11} \right) \times 100$$

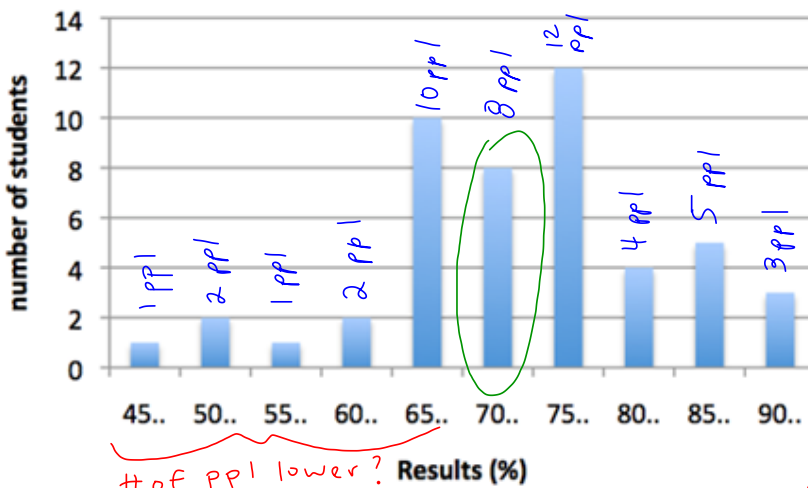
$R_{100} = 63.6$   $\rightarrow$  if decimal always round up

$R_{100} = 64^{\text{th}}$  percentile

The student is in the 64<sup>th</sup> percentile.  
 meaning? He did better than 63% of the students.

Question 3: The bar graph below shows the marks after a final exam. What is the percentile rank of a student with a mark of 70%?

**Group A's Final Exam Marks**



# of ppl lower?  
 = 1 + 2 + 1 + 2 + 10  
 = 16

$$R_{100} = \left( \frac{\text{lower} + \frac{\text{same}}{2}}{\text{total}} \right) \times 100$$

$$R_{100} = \left( \frac{16 + \frac{8}{2}}{48} \right) \times 100$$

$$R_{100} = 42 \text{nd percentile}$$