

Chapter 5 (Z score)

1) What is Z?

Z is standardized distribution of sample of cases. It measures individual score in a standardized environment.

Real like application, annual physic for kids, GRE score, etc

2) How to calculate Z score?

$$Z_i = \frac{X_i - \bar{X}}{S}$$

3) Example

John scored 87 in a test of average 95, and st.d. 7, Amy scored 82 in a test of average 79, and st.d. 5. What are their respective Z scores?

$$Z_{John} = \frac{87 - 95}{7} = -1.14$$

$$Z_{Amy} = \frac{82 - 79}{5} = 0.60$$

4) Percentile

John percentile is 12.92%, which means 12.92% of the test takers scored lower than John's; where Amy's percentile is 72.57%.

5) exercise

X_i	\bar{X}	S	Z	Percentile
28	35	6	-1.17	
96	107	3	-3.67	
72	76	5	-0.8	
13	15	9	-0.22	
109	92	4	4.25	