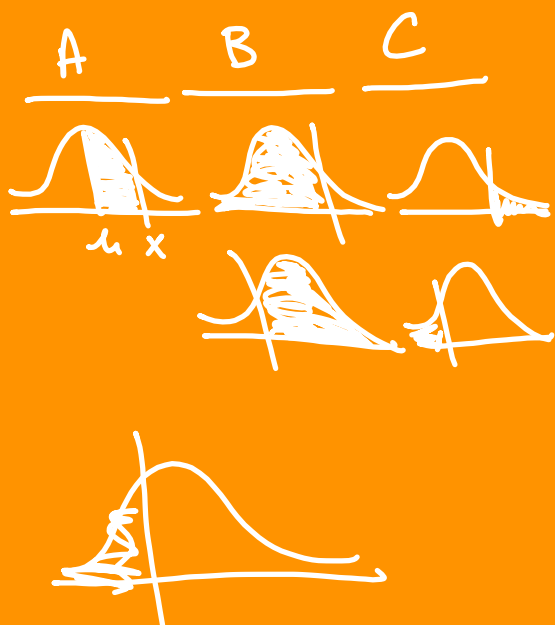
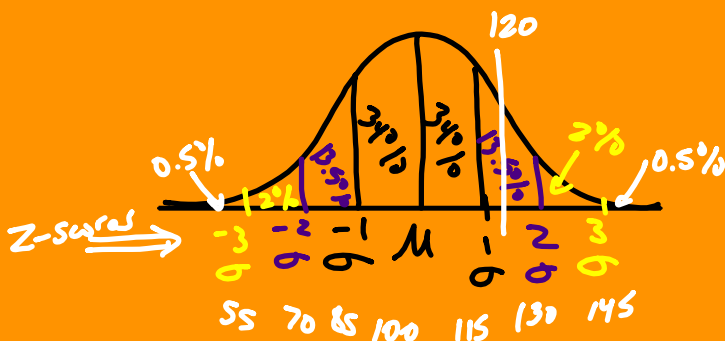
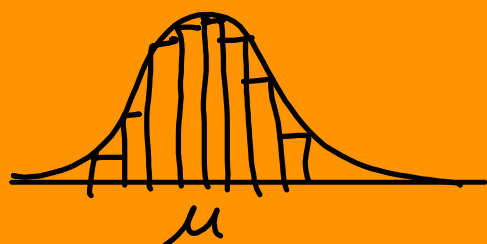


NORMAL DISTRIBUTION



percentile rank = % below

Z-score = # of standard deviations from the mean

$$\frac{120 - 100}{15} = \frac{20}{15} = 1.33$$

$$Z = \frac{x - \mu}{\sigma}$$

Billy Bob = 84

$$\mu = 66$$

$$\sigma = 18.4$$

200 students
took test.How many scored
below 84th percentile?

$$200 * 0.8365 = 167$$

What is Billy Bob's percentile rank?

$$Z = \frac{84 - 66}{18.4}$$

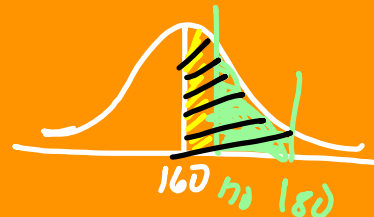
$$Z = 0.98$$

$$\text{Col. B} = 0.8365$$

 $\approx 84^{\text{th}}$ percentile


Col. B

How many student scored between 170 + 180?



$$Z = \frac{170 - 160}{18.4}$$

$$Z = 0.54$$

$$Z = \frac{180 - 160}{18.4}$$

$$= 1.09$$

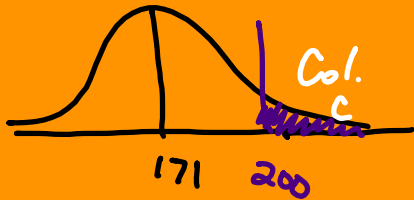
$$\begin{array}{r} \text{Col. A} \quad 0.3621 \text{ black area} \\ - 0.2054 \text{ yellow area} \\ \hline 0.1567 \end{array}$$

$$0.1567 * 200 \approx 31 \text{ students}$$

2022 Football - Weight of NC players

$$\mu = 171 \text{ lb.}$$

$$\sigma = 42.7 \text{ lb.}$$



45 players

1) If the team weights are normally distributed, how many players weighed over 200 lb.?

$$Z = \frac{200 - 171}{42.7} = 0.6791 \approx 0.68$$

$$\text{Col. C} = 0.2493 \times 45 = 11 \text{ players}$$

Coach G will cut the lowest 20% in weight players?

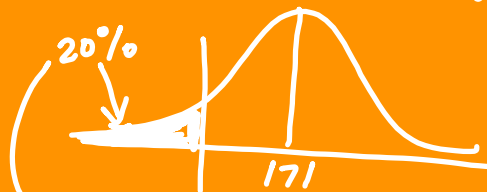
Find raw score.

$$-0.84 = \frac{x - 171}{42.7}$$

$$-35.868 = x - 171$$

$$135.132 = x$$

$$\underline{135 \text{ lb.}} \approx x$$



$$\text{Col C} = 0.2000$$

$$\underline{Z} \quad \underline{\text{Col C}}$$

0.84	0.2005
0.85	0.1977

