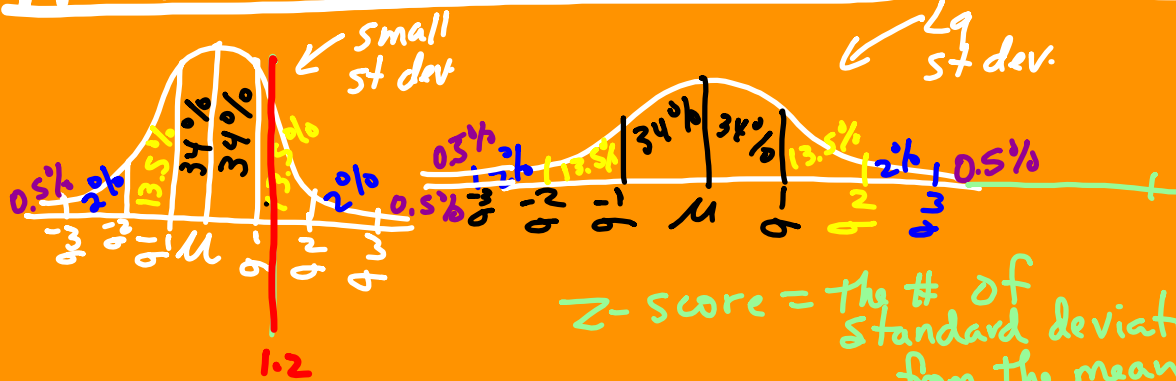
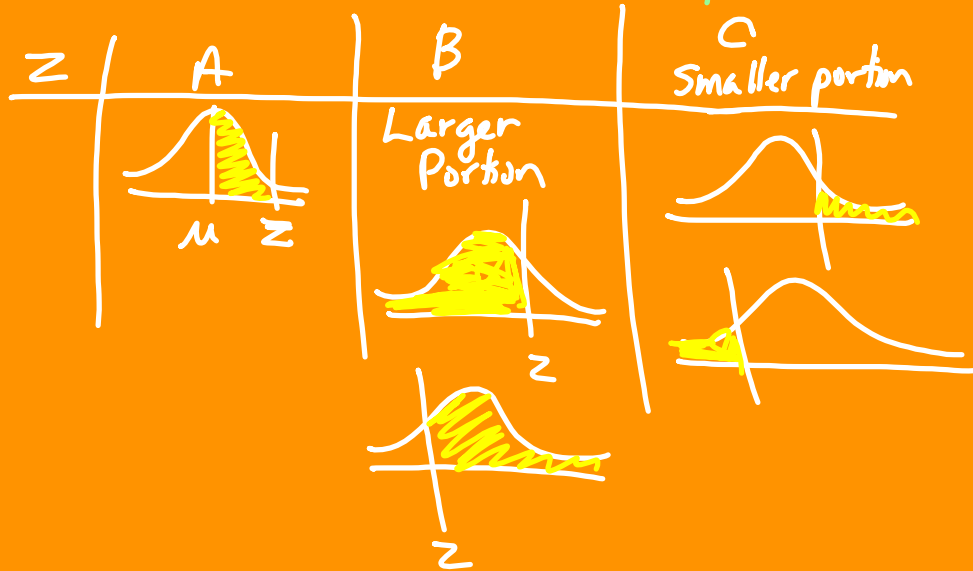


NORMAL DISTRIBUTION — population data



z-score = the # of standard deviations from the mean

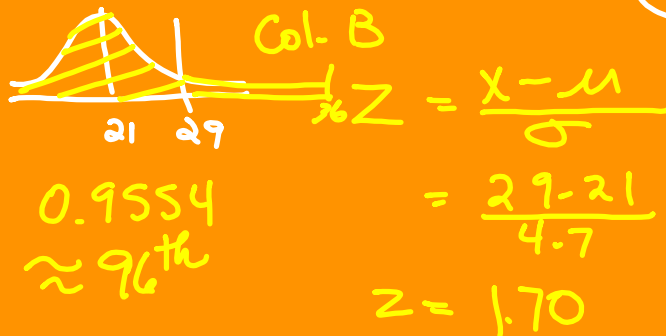


$$\text{ACT } \mu = 21$$

$$\sigma = 4.7$$

$$\text{Mad Max} = 29$$

What is percentile rank?



What score results in a percentile rank of 45%?



$$-0.13 = \frac{x - 21}{4.7}$$

$$-0.611 = x - 21$$

$$20.389 = x$$

$$20.4 \approx x$$

NC 2022 Football

$\mu = 171$ lb.
 $\sigma = 42.7$ lb.

45 players.

Coach will cut the smallest 15% of the team. What is the cutoff weight?

$$z = \frac{x - 171}{42.7} = 1.04$$

$$-44.408 = x - 171$$

$$+171$$

$$126.592 = x$$

$$127 \text{ lb. } x$$

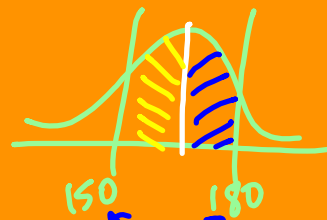
If the team is normally distributed, how many players weigh over 200 lbs?



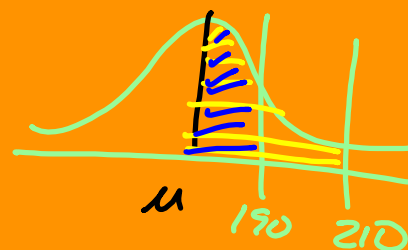
$$z = \frac{200 - 171}{42.7}$$

$$z = 0.68$$

$$\% = 0.2483 \times 45 = 11$$



Need z-score for both weights



Calculator — Menu — Statistics — Distributions
#6 #5

Find %:
Normal CDF

Find raw score:
Inverse Normal

— must give % to left

cut off for
heaviest
20%

InvNormal(0.8, 171, 42.7)