More Normal Distribution
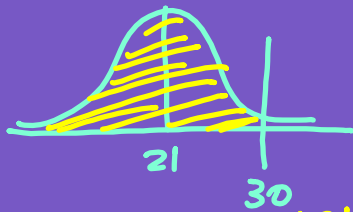

21
30
Col. B $Z = 1.91$

$\% = 0.9719$
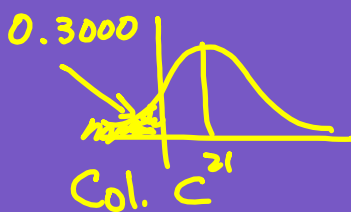$= 97^{th}$

$Z = \#$ of standard deviations from the mean.

ACT $\mu = 21$ $\sigma = 4.7$

Billy Bob scored 30.
What is his percentile rank.

$$Z = \frac{30-21}{4.7} = \frac{9}{4.7} = 1.91$$

$$Z = \frac{\underset{Score}{Raw} - Mean}{St.\ Dev.} = \frac{x - \mu}{\sigma}$$

Edwina scored at 30th percentile.
What was her raw score.

0.3000
21
Col. C

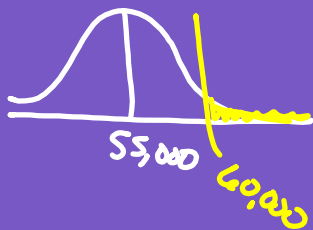$$Z = \frac{x - \mu}{\sigma}$$

$$4.7 \cdot {}^{-}0.52 = \frac{x - 21}{4.7} \quad 4.7$$

$${}^{-}2.44 = x - 21$$

$$18.56 = x$$

$$19 = x$$

A tire store has 200 tires in stock. The Mean life of these tires is 55,000 miles with a standard deviation of 4000 miles. How many of the tires will last more than 60,000 miles?

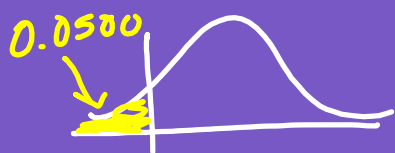$$Z = \frac{60,000 - 55,000}{4000} = \frac{5000}{4000} = 1.25$$

Col. C   0.1056

$$\begin{array}{r} \times\ 200 \\ \hline 21.12 \end{array}$$

21 tires

55,000   60,000

Col. B   Col. A

50,000   55,000   65,000

AAA batteries

$\mu = 350$ days

$\sigma = 10$ days

Replace for free the lowest 5% of batteries.

0.0500

How many days will lowest 5% last

z

10: $-1.65 = \dfrac{x - 350}{10} \cdot 10$

Find raw score.

$-16.5 = x - 350$

333.5 days $= x$