

CLASSWORK $z = \frac{x - \mu}{\sigma}$

1. A company can only ship their cereal boxes if they are within 3 standard deviations of the mean. The mean is 16oz with a SD of 0.2.

$$\mu = 16$$

$$\sigma = 0.2$$

- a) What weights ^{range} of cereal boxes can be shipped?

$$3(0.2) = 0.6$$

$$\boxed{15.4\text{oz to } 16.6\text{oz}}$$

- b) What's the probability a box weighs 15.3oz or less?

$$\textcircled{1} z = \frac{15.3 - 16}{0.2} = -3.5 \quad \textcircled{2} \text{ chart}$$

$$\approx \boxed{0.02\%}$$

- c) What's the probability a box weighs more than 16.3oz?

$$z = \frac{16.3 - 16}{0.2} = 1.5$$

$$100 - 93.32 = \boxed{6.68\%}$$

above

- d) Out of the 1,500 boxes being shipped above about how many will be less than 15.7oz?

$$z = \frac{15.7 - 16}{0.2} = -1.5 \rightarrow 6.68\% \text{ probability}$$

$$1500(0.0668) = 100.2 \approx \boxed{100 \text{ boxes}}$$

- e) probability boxes btwn 15.45 ± 16.1
- $-2.75 \quad 0.5$
- $0.3\% \quad 69.15\%$
- $$\boxed{68.85\%}$$

2. John's z-score is 0.72. The $\mu = 56$, $\sigma = 3$,

what's his score? $0.72 = \frac{x - 56}{3}$

$$\boxed{x = 58.16}$$