

15 L #4b

X = weight of a lettuce

$$X \sim N(550, 25^2)$$

$$Z = \text{invnorm}(0.90) = 1.282$$

↑
90th percentile

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

$$1.282 = \frac{X - 550}{25}$$

$$X = 582g$$

#5 $X = \text{test score}$

$$X \sim N(55, 15^2)$$

$$(a) Z = \text{invnorm}(0.95) = 1.645$$

$$1.645 = \frac{d - 55}{15}$$

$$d = 79.7$$

$$(b) Z = \text{invnorm}(0.10) = -1.282$$

$$-1.282 = \frac{f - 55}{15}$$

$$\boxed{f = 35.8}$$

15L #3 $X = \text{volume of cola bottle}$

$$X \sim N(502, 1.6)$$

$$(a) P(X < 500) = P(Z < -1.25) = \underline{0.106}$$

$$Z = \frac{500 - 502}{1.6} = -1.25$$

$$(b) P(500 < X < 505) = P(-1.25 < Z < 1.875)$$

$$Z(505) = \frac{505 - 502}{1.6} = 1.875 \quad = \underline{0.864}$$

$$(c) P(a < X < b) = 0.95$$

$$P(502 < X < b) = 0.475$$

$$1.96 = \frac{b - 502}{1.6}$$

$$b = 505$$

(d) 20% of bottles contain p ml or more. Find p .

$$Z = \text{invnorm}(0.80) = 0.842$$

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

$$0.842 = \frac{p - 502}{1.6}$$

$$p = 503$$

HW quiz 12-12

Cabbages have an average weight of 21 oz with $\sigma = 2$ oz.

(a) $P(X > 22)$

(b) The top 10% weigh more than q oz.
Find q .