$$\bar{x} \pm z \cdot \frac{\sigma}{\sqrt{n}} \longrightarrow E = z \cdot \frac{\sigma}{\sqrt{n}}$$

$$\bar{x} \pm t \cdot \frac{s}{\sqrt{n}}$$

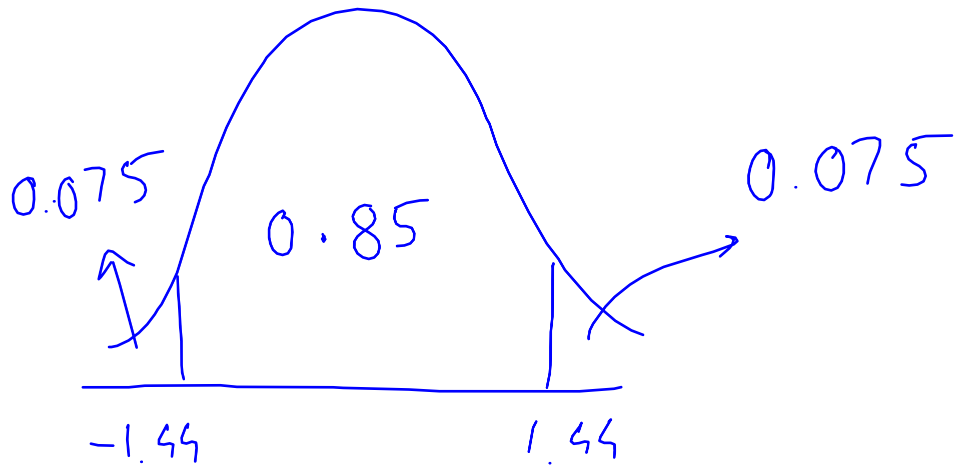
$$\hat{p} \pm z \cdot \sigma_{\hat{p}} \qquad z \cdot \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$$

CI for avg. income (μ)

$\bar{x} = 27.1$

$n = 1056$

$\sigma = 10.4$



$$\bar{x} \pm z \cdot \frac{\sigma}{\sqrt{n}} \qquad 27.1 \pm 1.44 \times \frac{10.4}{\sqrt{1056}}$$

=NORM.S.INV(0.925)

0.461

[26.639, 27.561]

=CONFIDENCE.NORM(0.15,10.4,1056)

CI for p

$n = 1649$

1270 read above

379 " at or below

$\hat{p} = 0.230$

$1 - \hat{p} = 0.770$

$$\sigma_{\hat{p}} = \sqrt{\frac{0.23 \times 0.77}{1649}}$$

$= 0.01$

$\hat{p} \pm z \cdot \sigma_{\hat{p}}$

$0.23 \pm 1.96 \times 0.01$

0.23 ± 0.0196

$[0.2104, 0.2496]$