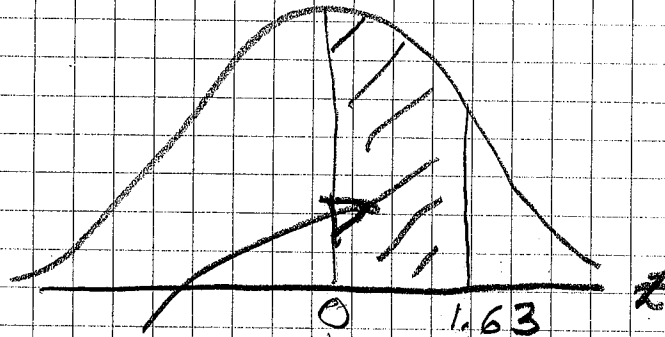


# NORMAL DISTRIBUTION

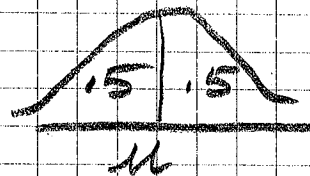
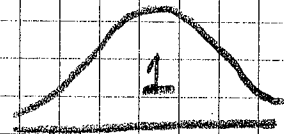
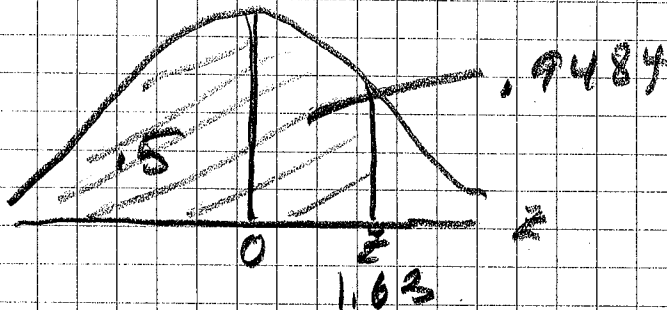
the Standard Normal Distribution

$$\mu = 0$$

$$\sigma = 1$$



$$P(0 < z < 1.63) = .4484$$

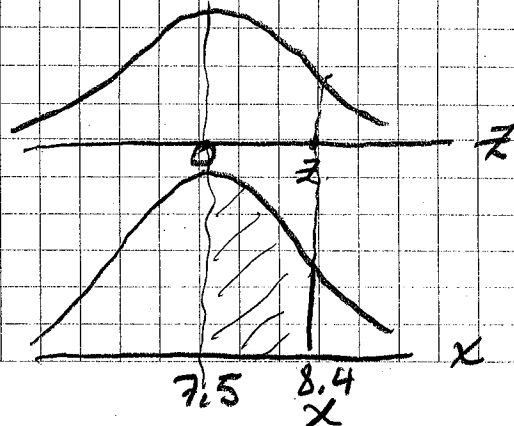


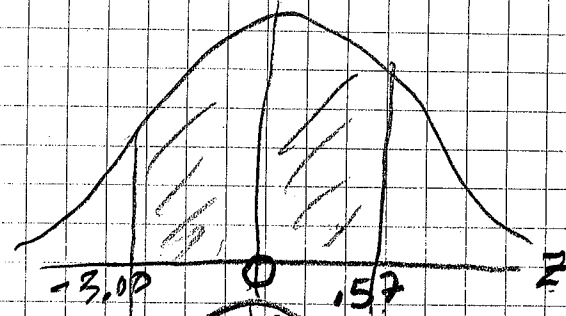
Example: Following the example about the newborn boys where  $\mu = 7.5$  and  $\sigma = 0.7$ , what is the probability that the weight of a newborn boy is between 7.5 and 8.4?

$$z = \frac{x - \mu}{\sigma} = \frac{8.4 - 7.5}{0.7}$$

$$\approx 1.29$$

$$P(7.5 < X < 8.4) = .40147$$





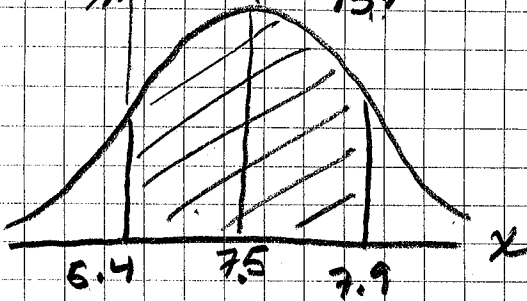
$$x = 5.4$$

$$z = \frac{x - \mu}{\sigma} = \frac{5.4 - 7.5}{0.7}$$

$$= -3.00$$

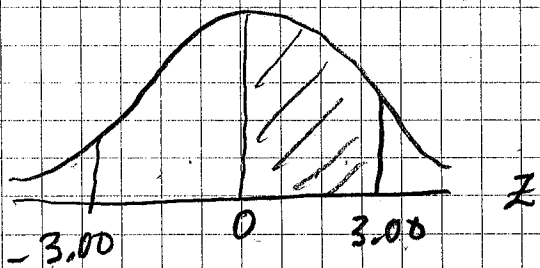
$$x = 7.9$$

$$z = \frac{7.9 - 7.5}{0.7} = .57$$



$$P(5.4 < X < 7.9)$$

$$P(0 < z < .57) = .21566$$



$$P(0 < z < 3.00) = .49865$$

$$\text{Answer: } .49865 + .21566 = .71431$$