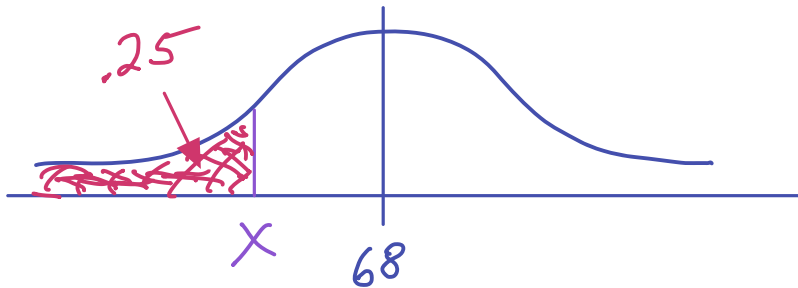


# Solutions

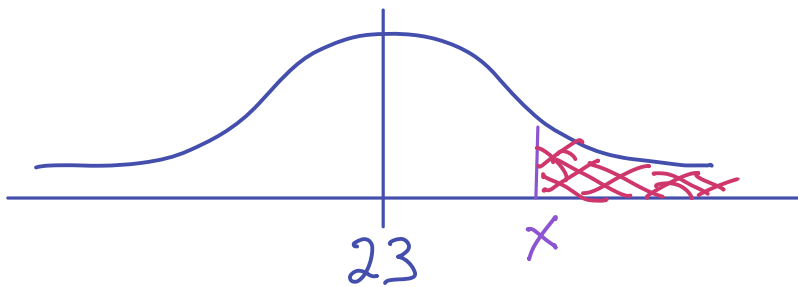
1. Suppose the heights of males in a particular city are normally distributed with a mean of 68 inches and a standard deviation of 4 inches. What height separates the bottom 25% from the rest?



$$\text{invNorm}(.25, 68, 4)$$

$$= 65.3 \text{ inches}$$

2. The mean temperature in Glens Falls for the month of February is 23 degrees with a standard deviation of 4.2 degrees. How warm would it have to be in order to be in the warmest 15% of days?

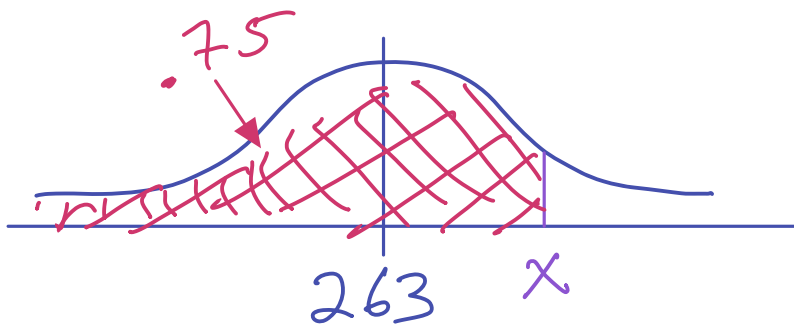


$$\text{invNorm}(1 - .15, 23, 4.2)$$

$$= 27.35^\circ$$

3. The distances male long jumpers for State College jump are approximately normal with a mean of 263 inches and a standard deviation of 14 inches.

Suppose a male long jumper's jump ranked in the 75th percentile. How long was his jump?

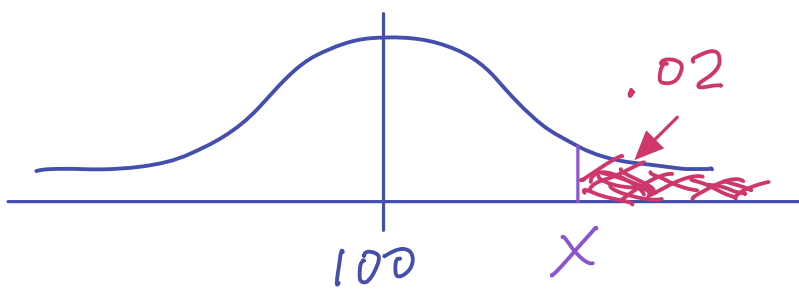


$$\text{invNorm}(.75, 263, 14)$$

$$= 272.44 \text{ inches}$$

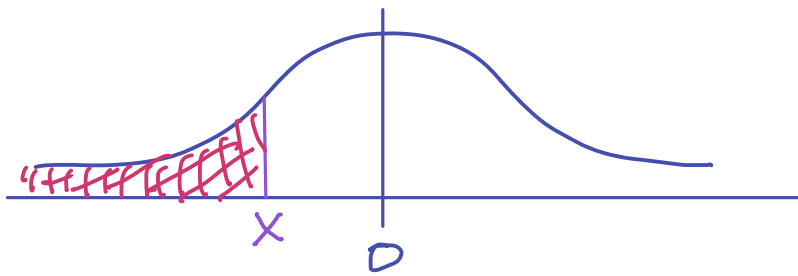
4. The scoring of modern IQ is such that Intelligence Quotients (IQs) have a normal distribution of  $\mu = 100$  and  $\sigma = 15$ .

Mensa International is a non-profit organization that accepts only people with IQ score within the top 2%. What level of IQ qualifies one to be a member of Mensa?



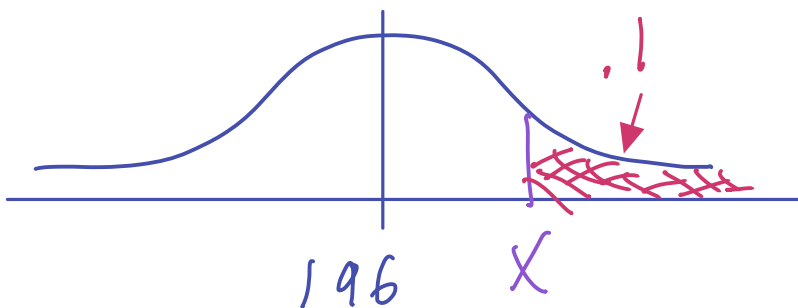
$$\text{invNorm}(1 - .02, 100, 15) = 130.8$$

5. What is the z-score value that corresponds to the 30th percentile?



$$\text{invNorm}(.3, 0, 1) = -.5244$$

6. In a weightlifting competition, the amount that the competitors can lift is normally distributed with  $\mu = 196$  kg and  $\sigma = 11$  kg. Only the top 10% of all competitors will be able to advance to the next phase of the competition. What amount must a competitor lift in order to move into the next phase of the competition?



$$\text{invNorm}(1 - .1, 196, 11) = 210.1 \text{ Kg}$$