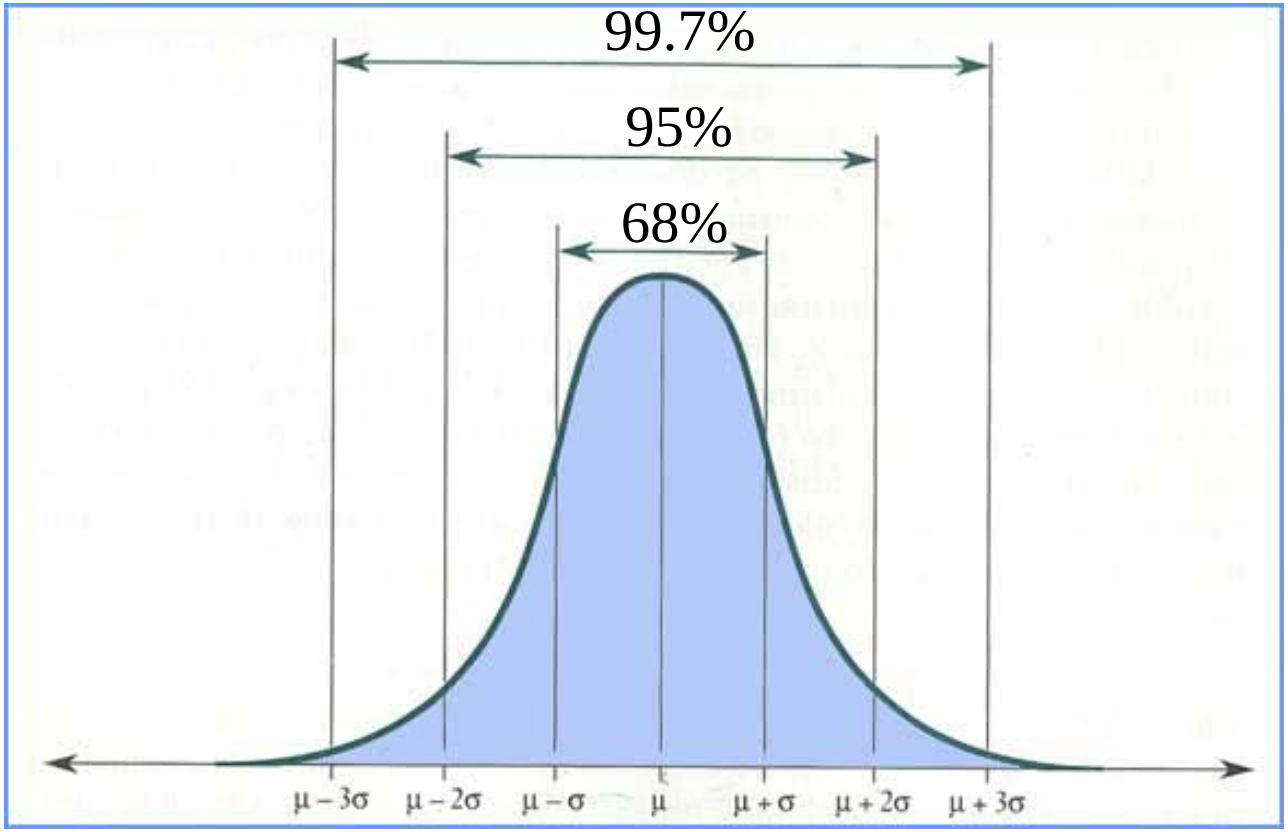
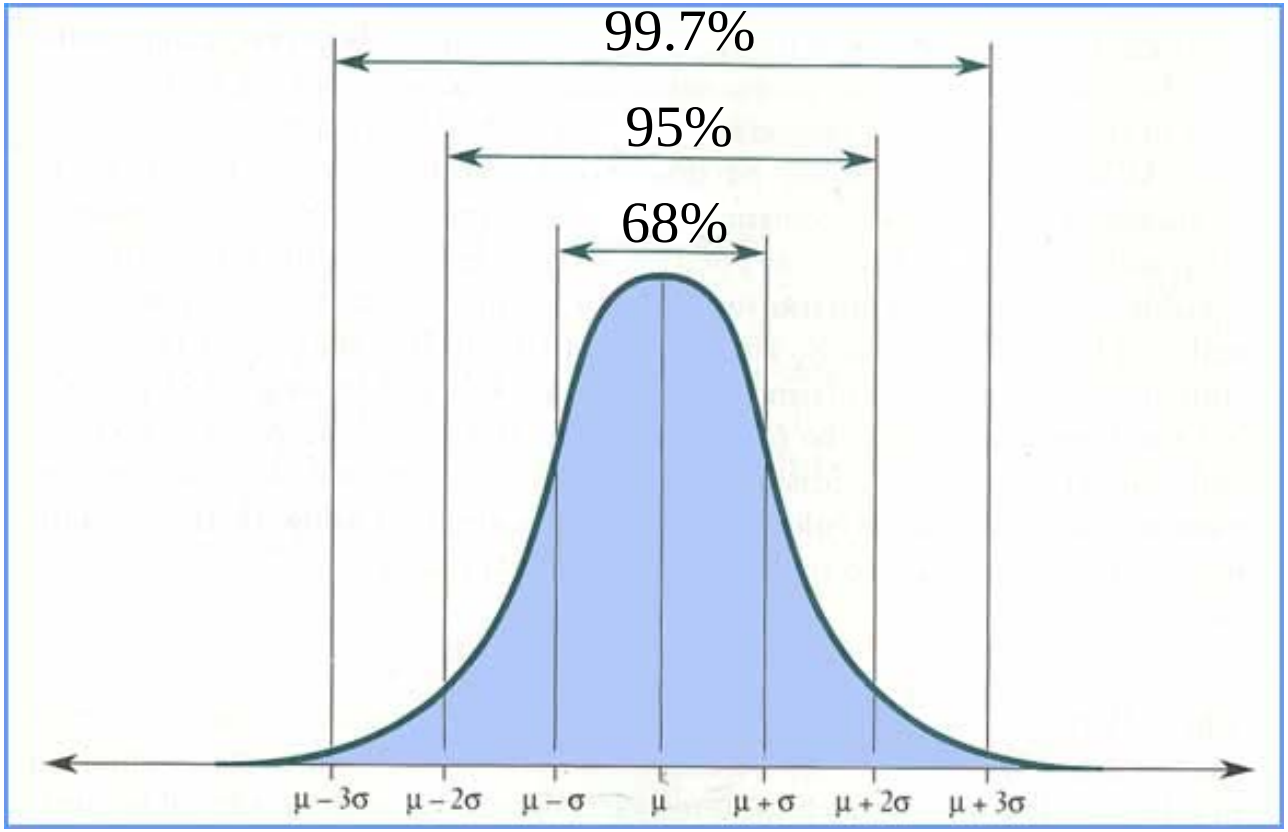
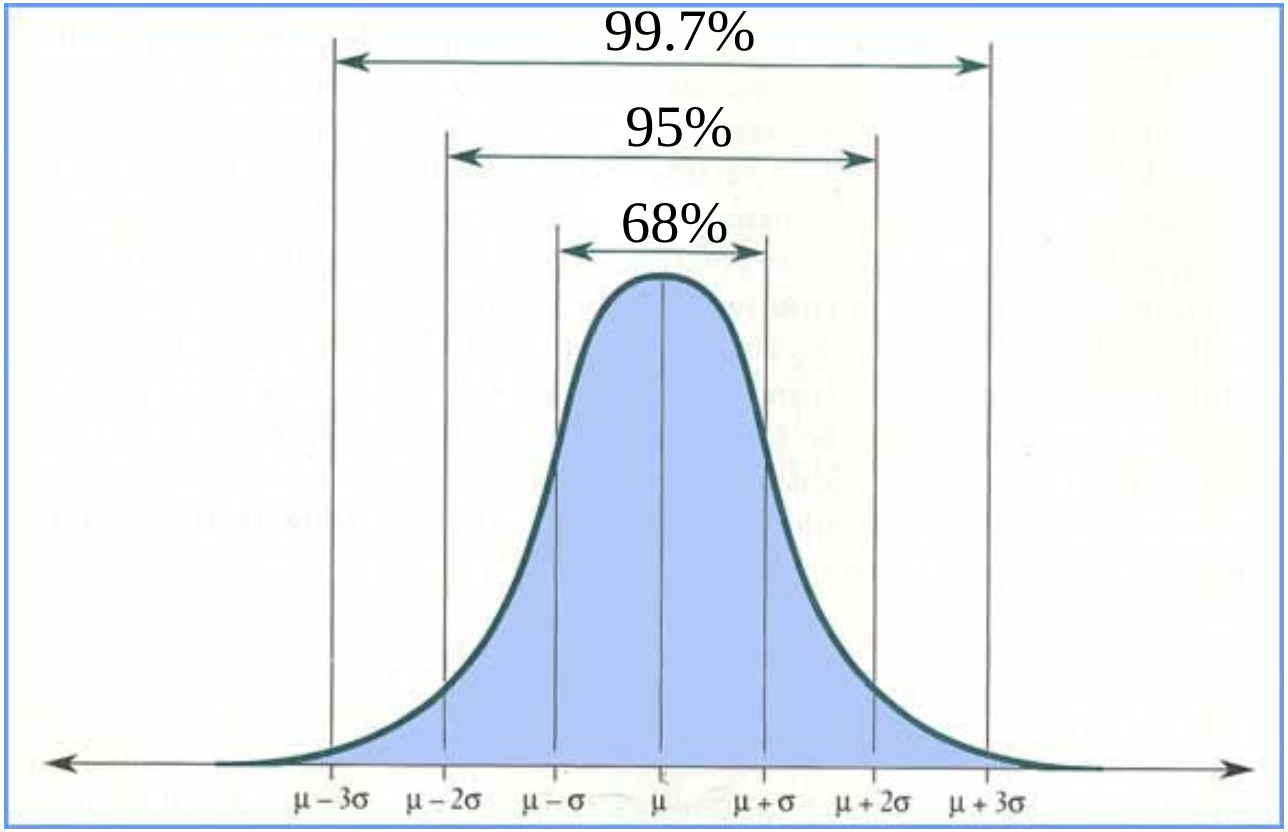
GETTING MORE NORMAL



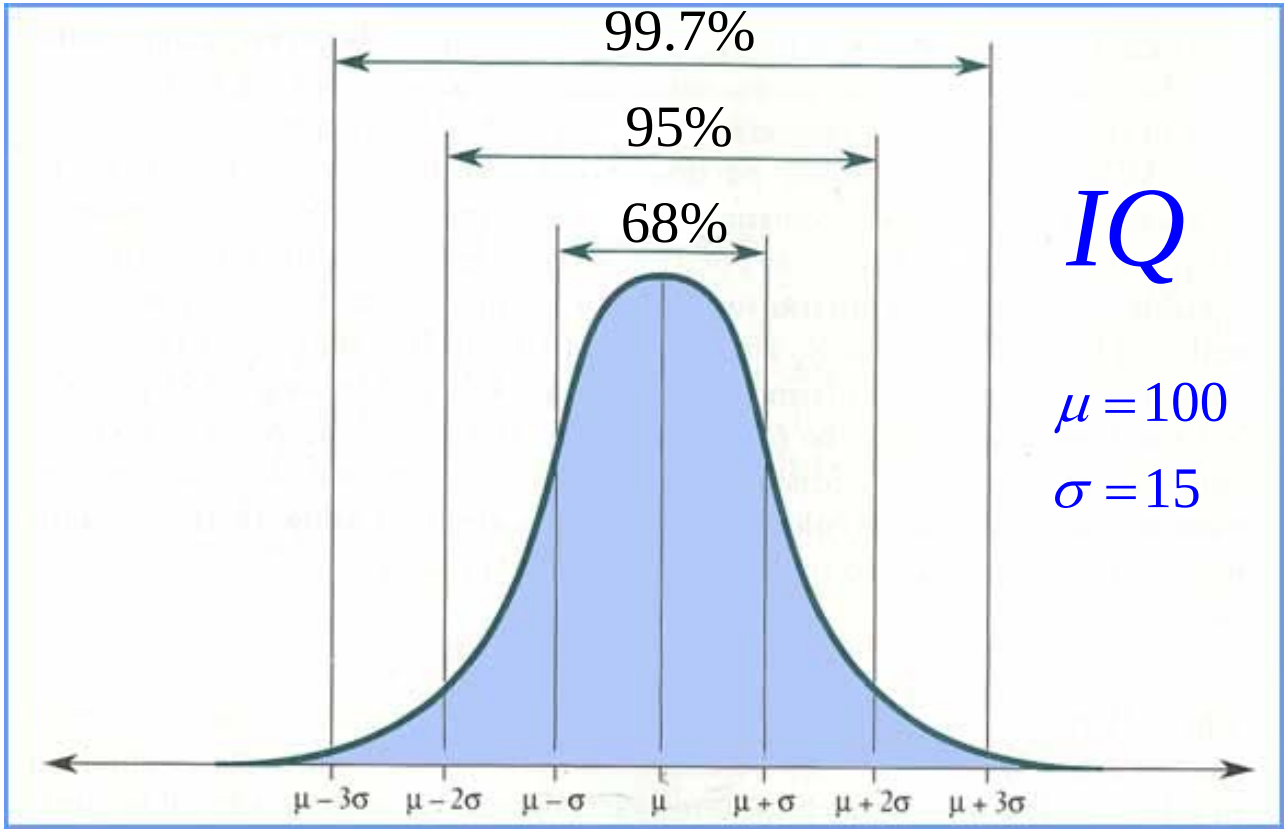
In a true normal distribution, about 68% of the data lies within one standard deviation of the mean, 95% within two standard deviations, and 99.7% within three standard deviations.



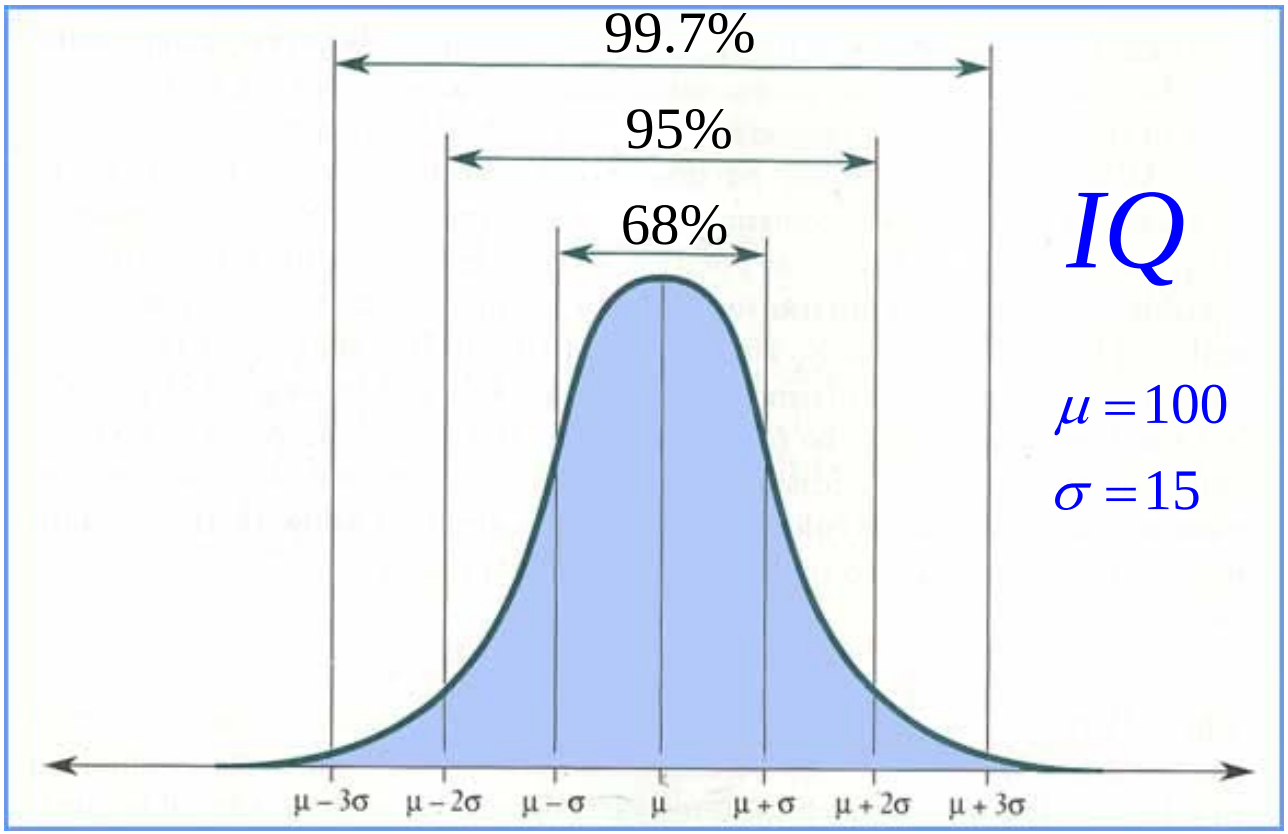
Hence, in a normal distribution almost all of the data is within three standard deviations of the mean.



Suppose that IQ is normally distributed with a mean of 100 and a standard deviation of 15.

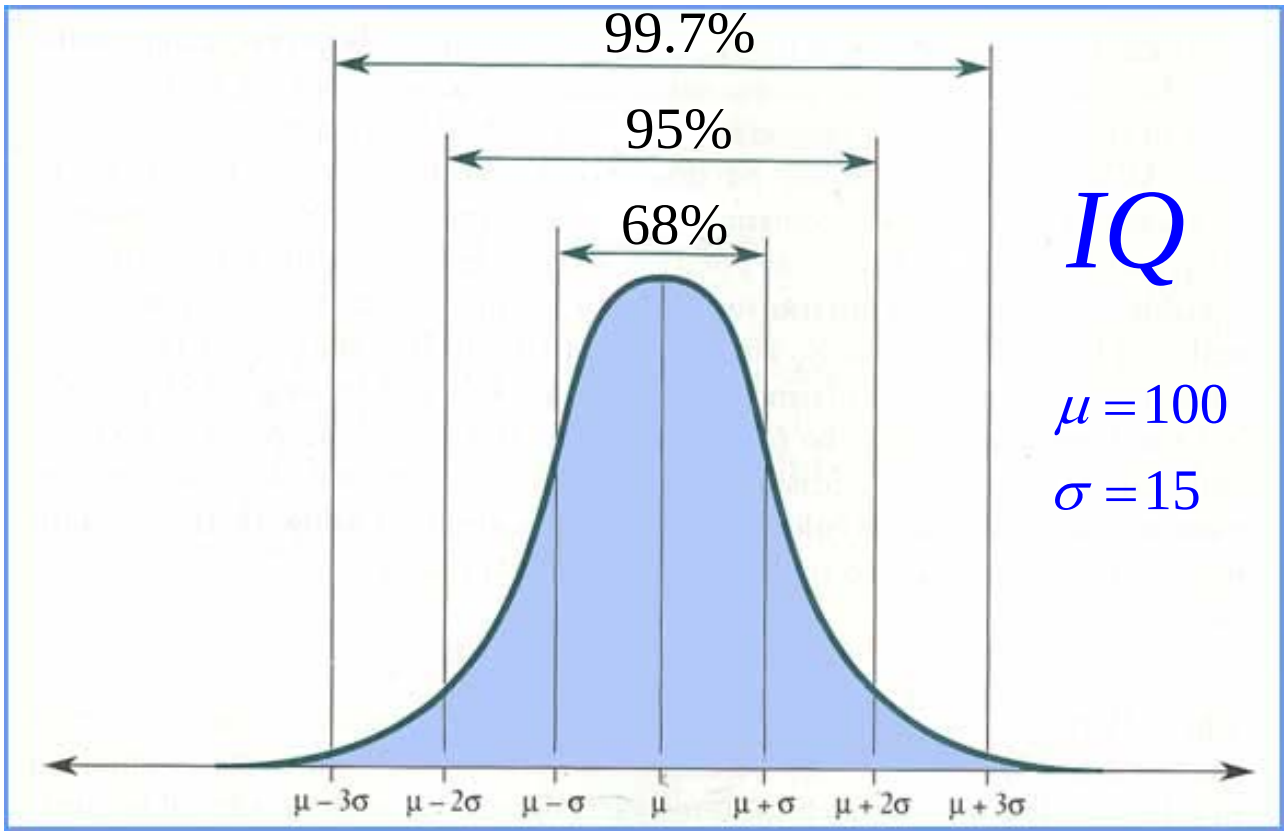


What is the probability that someone has an *IQ* between 85 & 115?

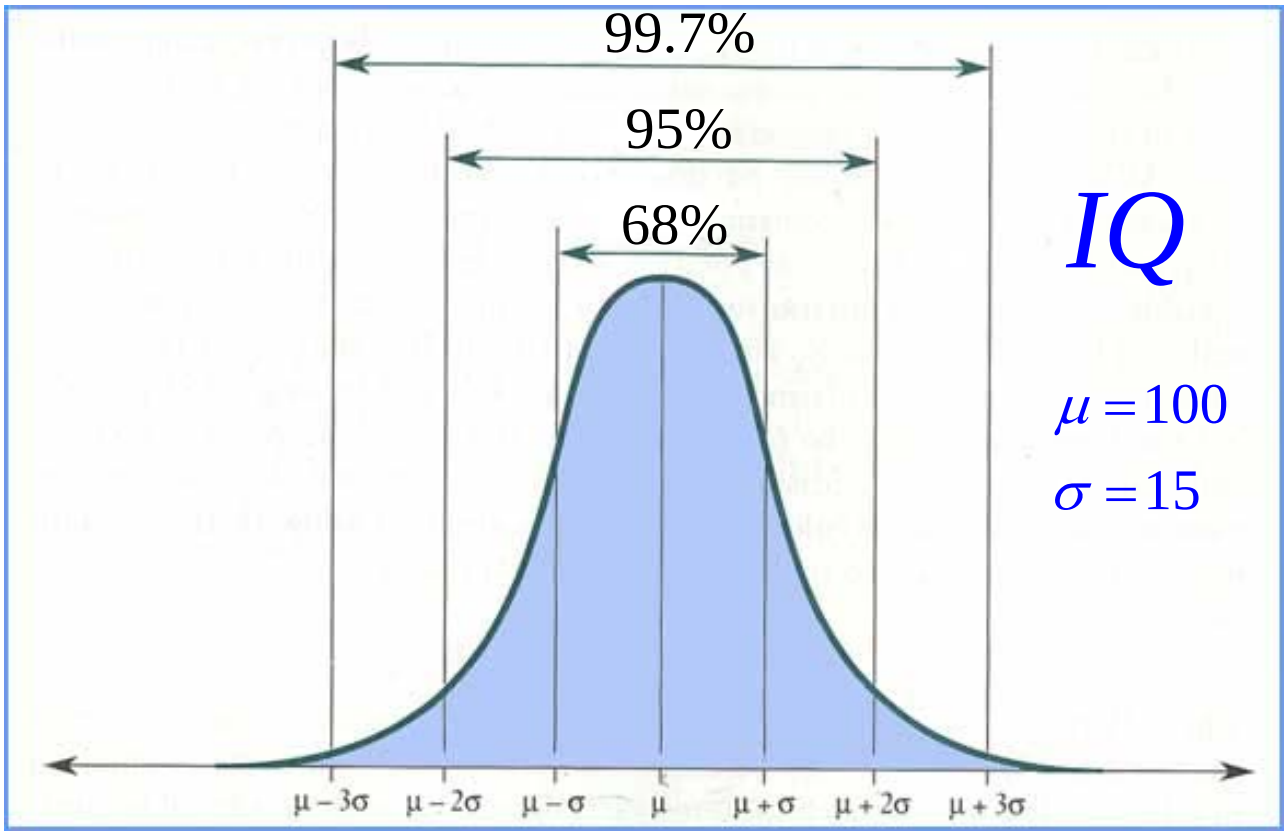


What is the probability that someone has an *IQ* between 85 & 115?

$$P(85 < IQ < 115) = 68\%$$

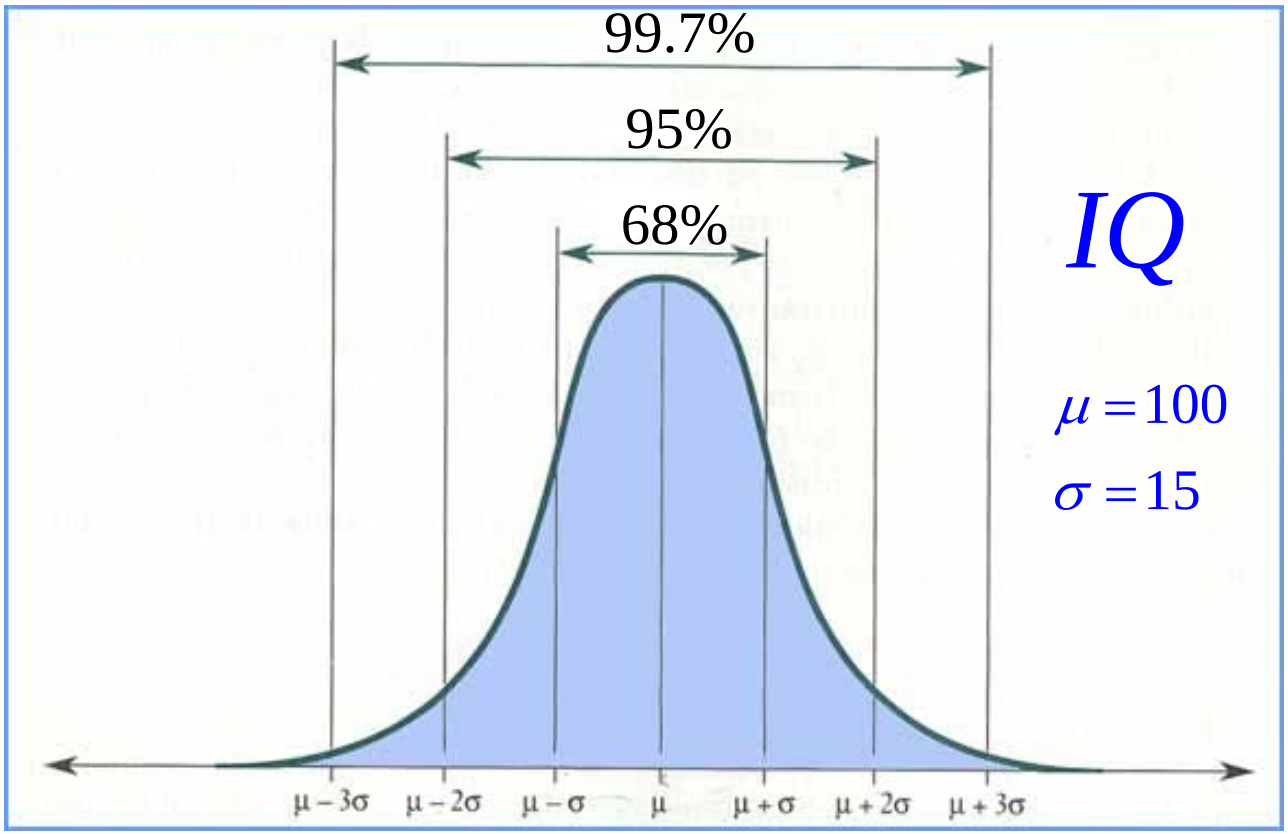


What is the probability that someone has an *IQ* between 100 & 115?

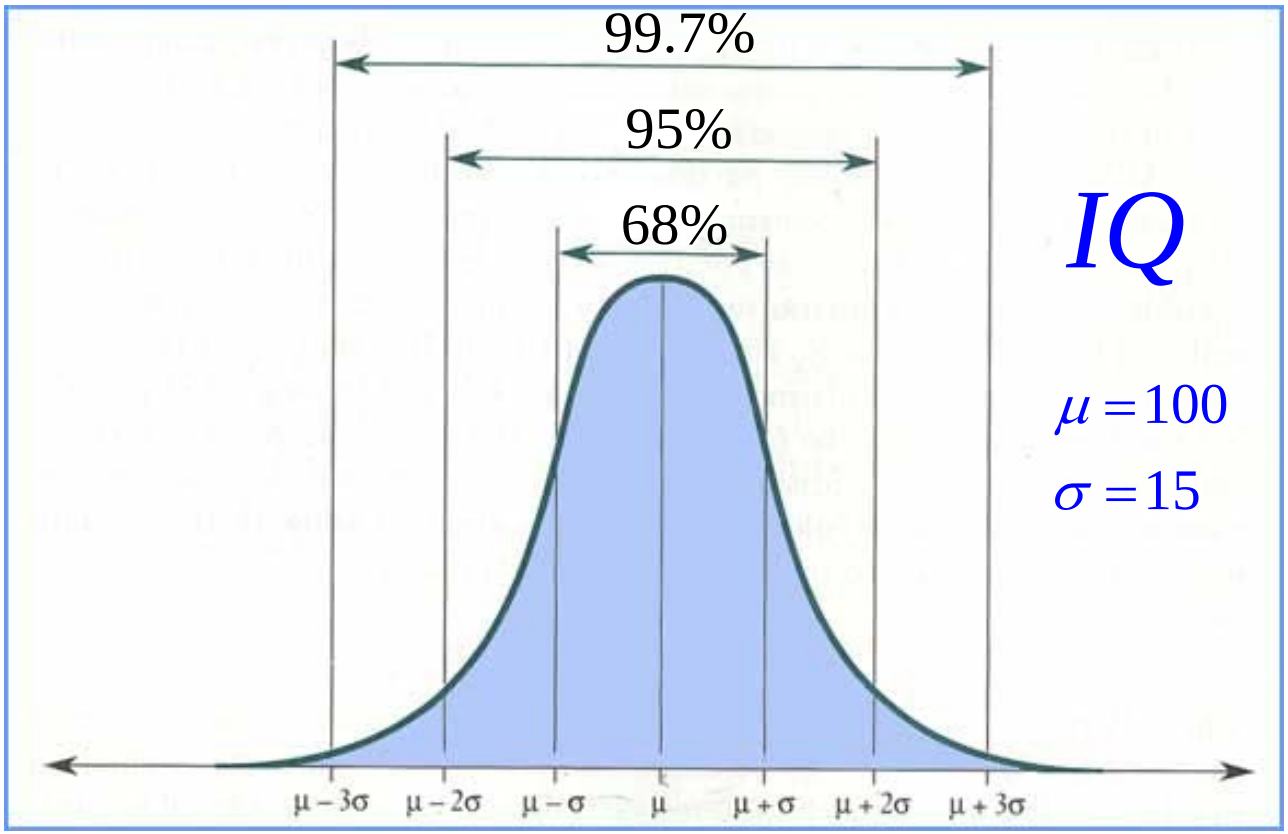


What is the probability that someone has an *IQ* between 100 & 115?

$$P(100 < IQ < 115) = 34\%$$

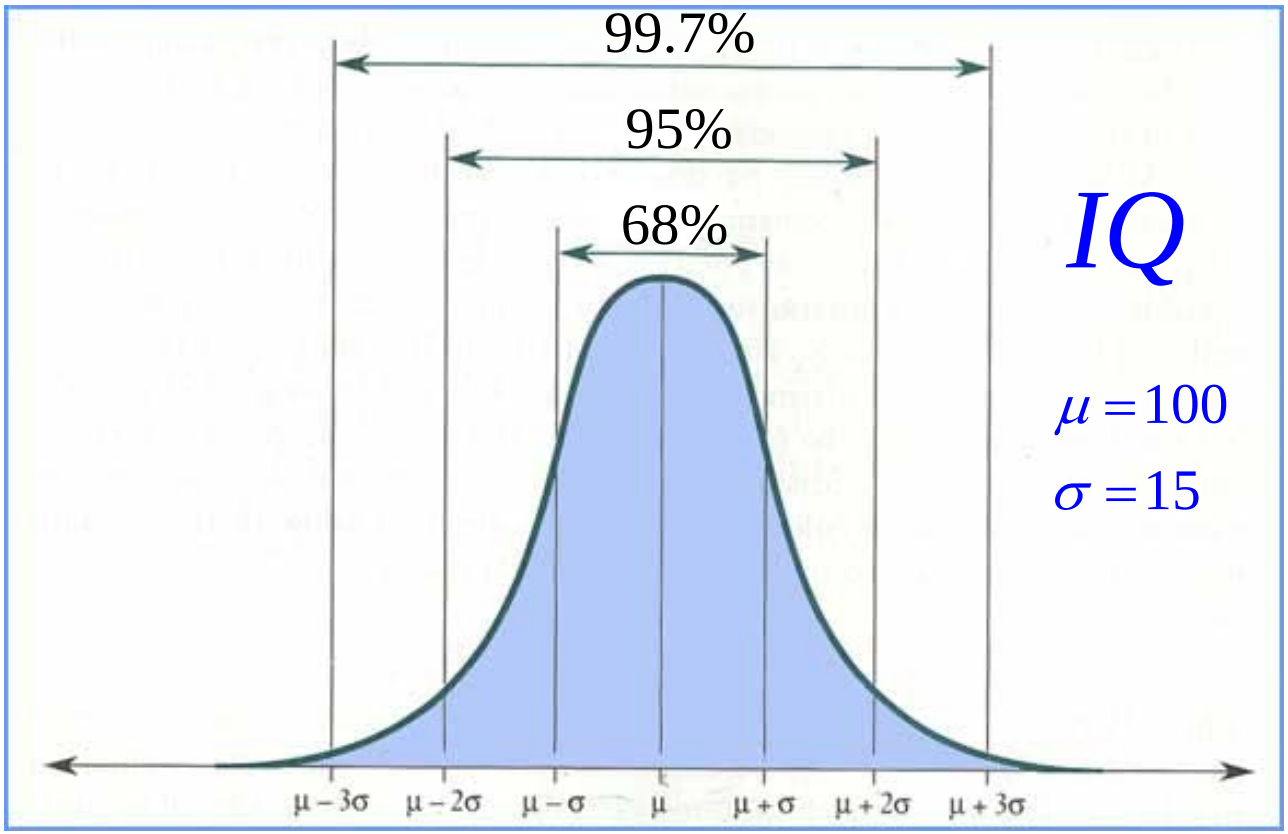


What is the probability that someone has an *IQ* between 100 & 130?

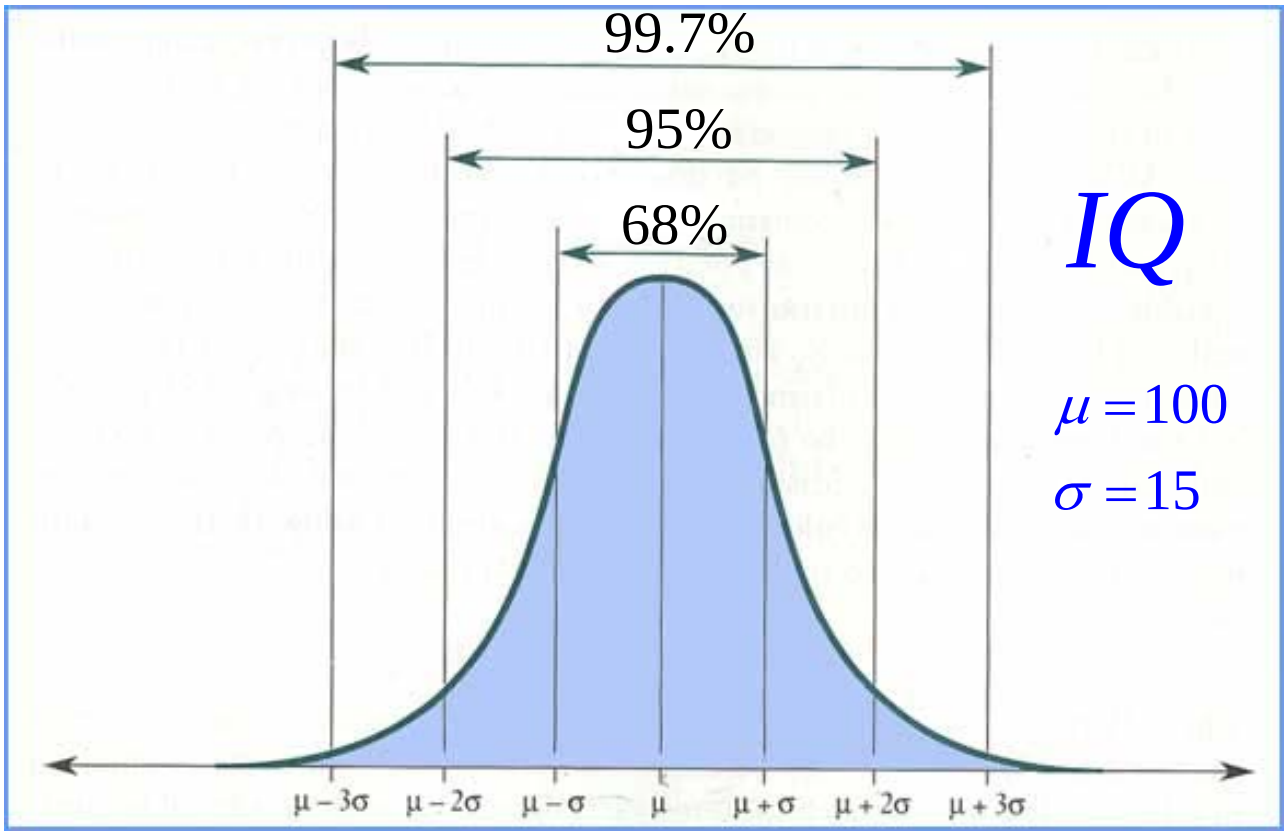


What is the probability that someone has an *IQ* between 100 & 130?

$$P(100 < IQ < 130) = 47.5\%$$

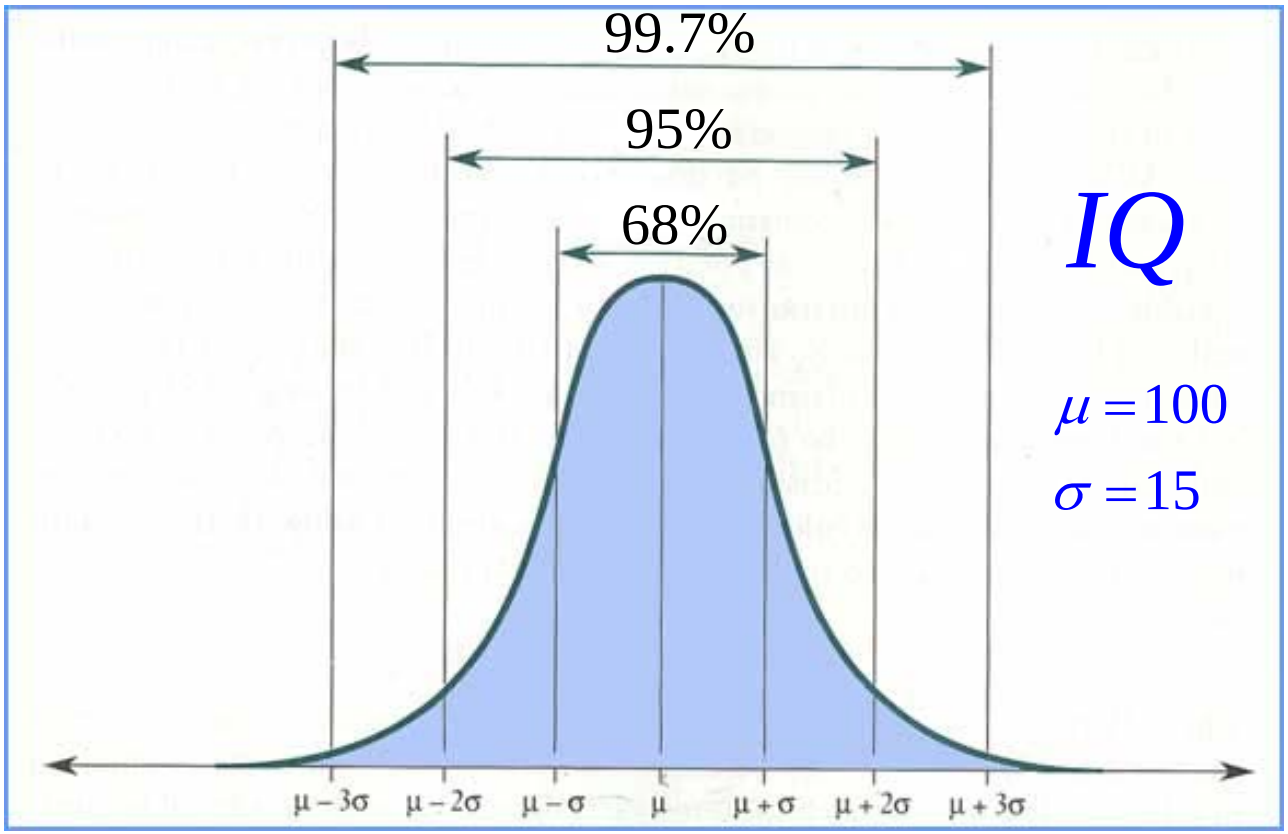


What is the probability that someone has an *IQ* higher than 130?

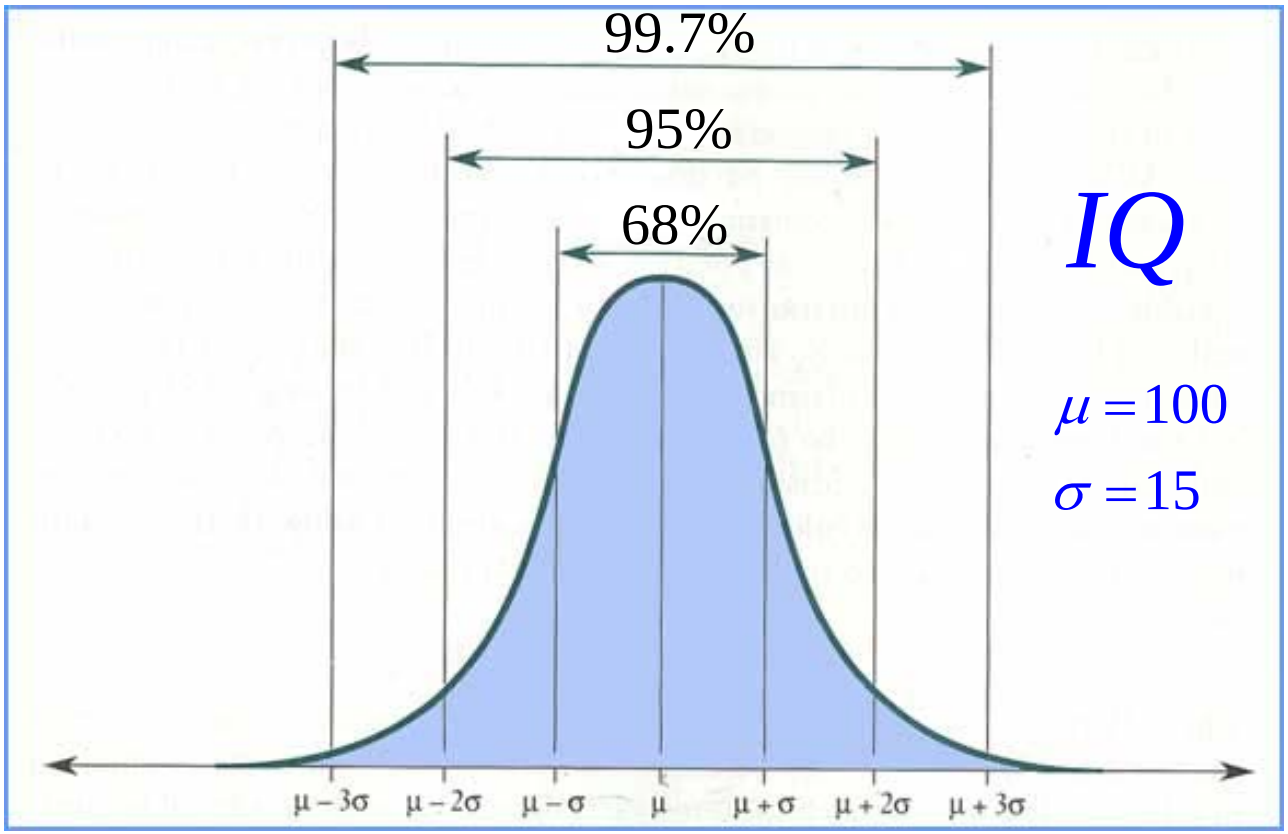


What is the probability that someone has an *IQ* higher than 130?

$$P(IQ > 130) = 100\% - 50\% - 47.5\% = 2.5\%$$

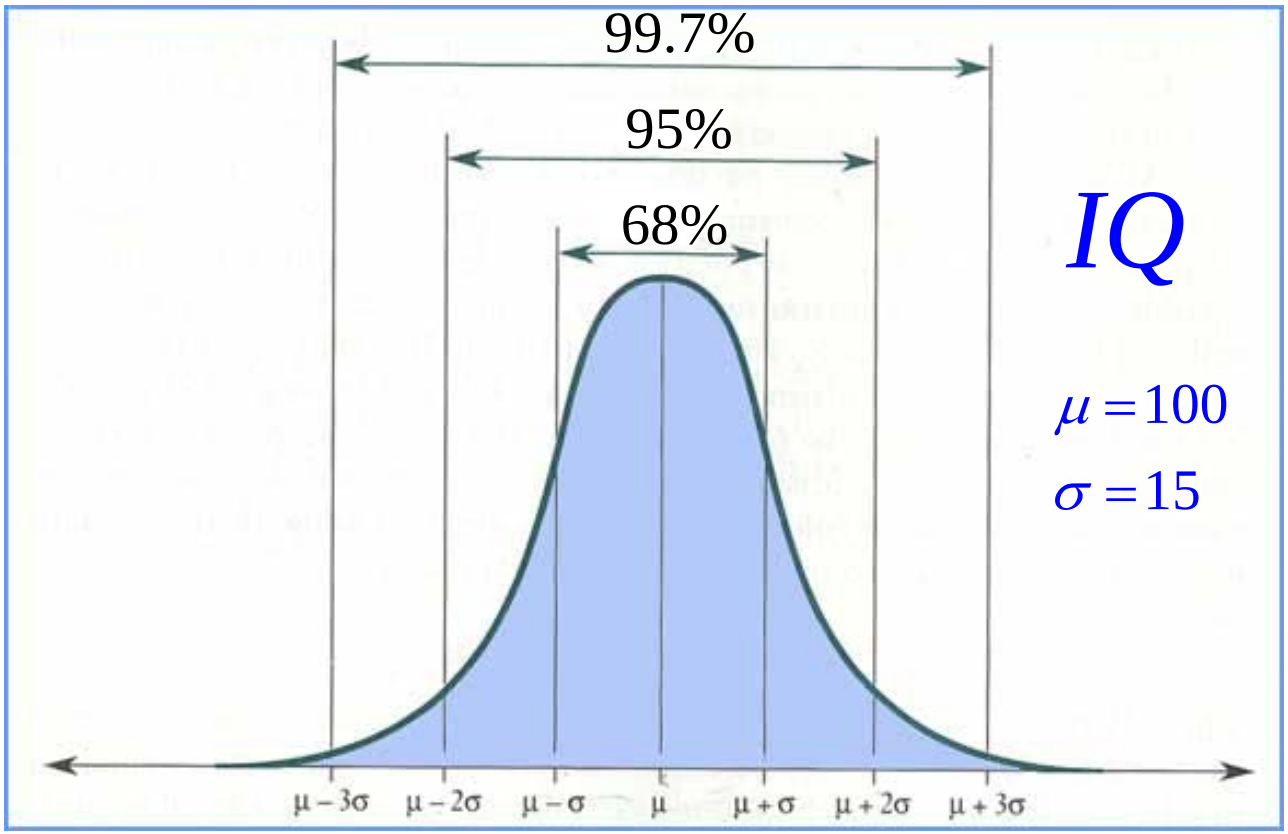


What is the probability that someone has an *IQ* between 55 & 145?

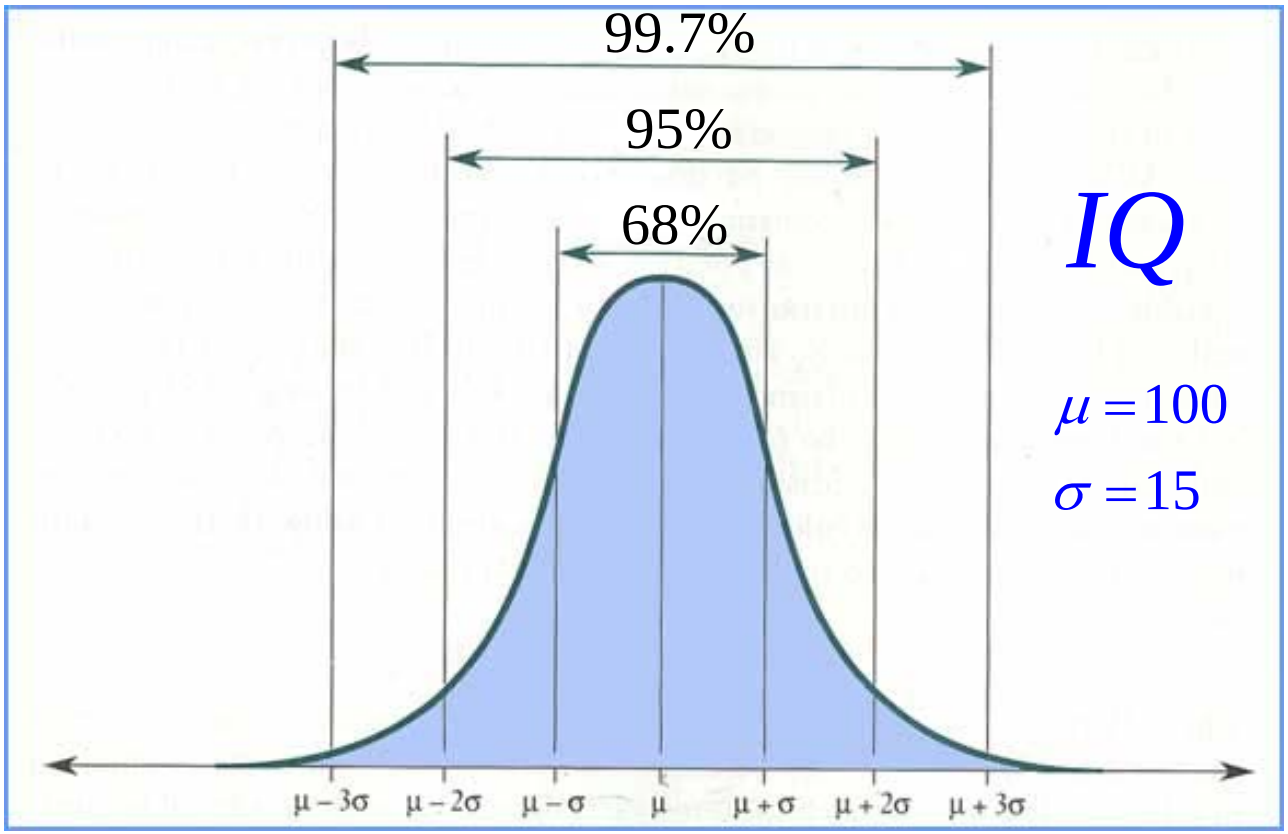


What is the probability that someone has an *IQ* between 55 & 145?

$$P(55 < IQ < 145) = 99.7\%$$



What is the probability that someone has an *IQ* higher than 145?



What is the probability that someone has an *IQ* higher than 145?

$$P(IQ > 145) = 0.15\%$$