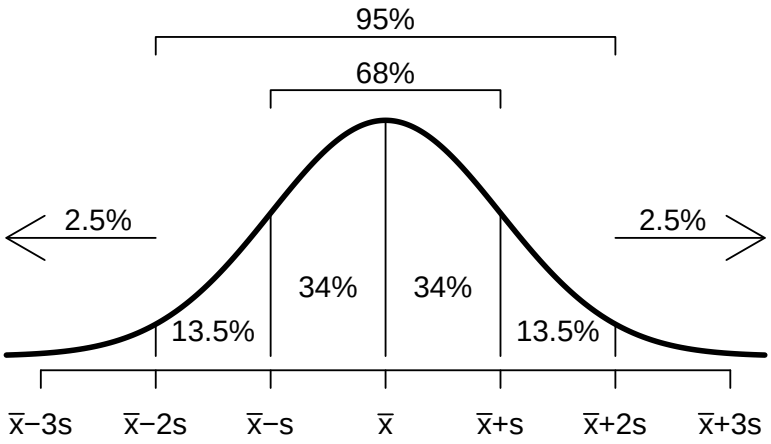
1. **Problem:**
   The figure below summarizes the *standard deviation rule* for normal distributions. In the figure, $\bar{x}$ is the mean and s is the standard deviation. The percentages show the fraction of measurements that fall within various intervals.



   A specific distribution is approximately normal with mean $\bar{x} = 1.7$ and standard deviation $s = 0.5$.

   (a) What percent of the measurements are greater than 2.2?

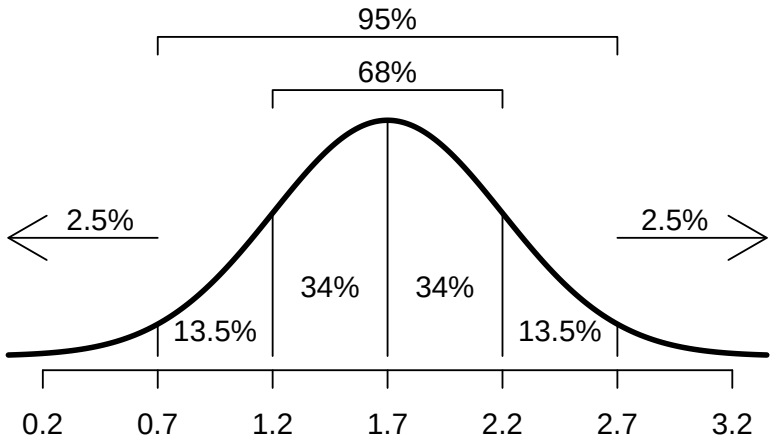
   (b) What percent of the measurements are less than 0.7?

   (c) What measurement is greater than 97.5% of the measurements?

   (d) What measurement is less than 84% of the measurements?

   (e) What percent of the measurements are between 1.2 and 2.2?

Solution: It is probably best to start by redrawing (relabeling) the normal distribution with the specific values.



(a) Because we are asked for the percent of measurements *greater* than 2.2, we add the areas to the right of 2.2.

$\boxed{16\%}$

(b) Because we are asked for the percent of measurements *less* than 0.7, we add the areas to the left of 0.7.

$\boxed{2.5\%}$

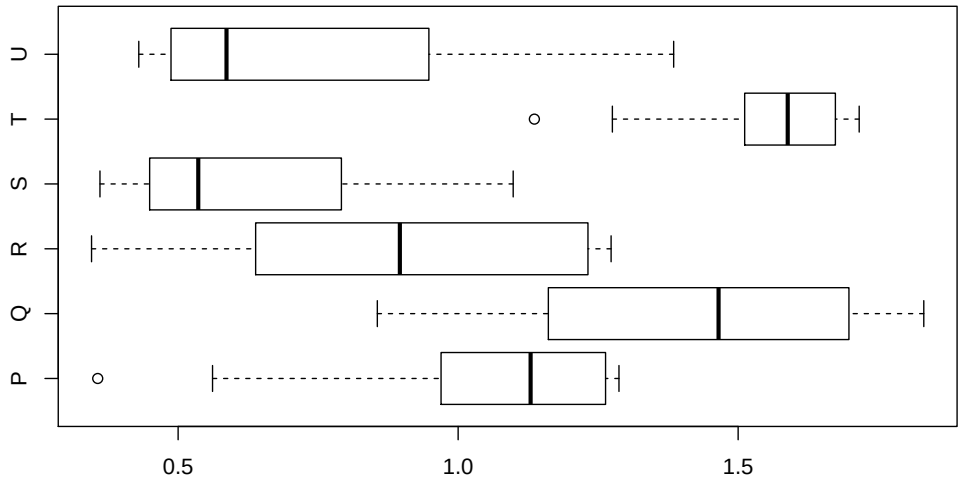
(c) We determine which leftward area has a total of 97.5%. This occurs at $\boxed{2.7}$.

(d) We determine which rightward area has a total of 84%. This occurs at $\boxed{1.2}$.

(e) We add the areas from 1.2 to 2.2.

$\boxed{68\%}$

2. **Problem:**
Six random variables were each measured 25 times. The resulting boxplots are shown.



(a) Which variable produced the largest measurment?
(b) Which variable produced the smallest measurment?
(c) Which distribution has the largest median?
(d) Which distribution has the smallest median?
(e) Which distribution has the largest 25th percentile?
(f) Which distribution has the smallest 25th percentile?
(g) Which distribution has the largest 75th percentile?
(h) Which distribution has the smallest 75th percentile?

Solution:

(a) Q
(b) R
(c) T
(d) S
(e) T
(f) S
(g) Q
(h) S