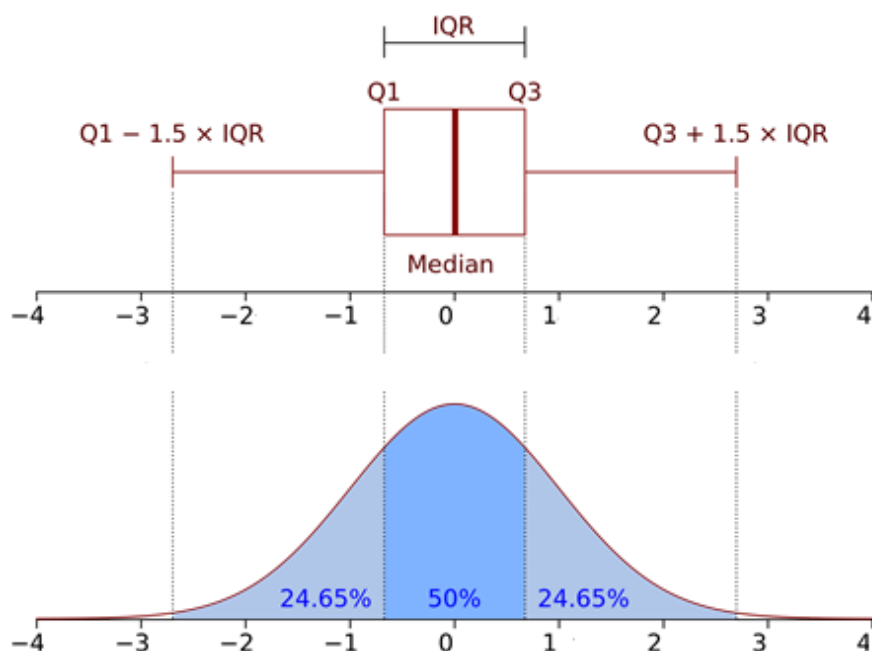


Given the standard normal distribution and its boxplot below.



1. Find the x value to cut Q1, and the x value to cut Q3.

>> $Q3 = \text{norminv}(0.75) = 0.6745$

>> $Q1 = \text{norminv}(0.25) = -0.6745$

2. In order to have the right-hand-side whisker to locate at $x=3$, we need to extend $y \cdot IQR$ from Q3. Find y.

>> $IQR = Q3 - Q1 = 1.3490$

>> $y = (3 - Q3) / IQR = 1.7239$

3. The $1.5 \cdot IQR$ cuts off the left-hand side at x. Find x.

>> $Q1 - 1.5 \cdot IQR = -2.6980$

Or

>> $\text{left_tail_size} = (1 - (0.5 + 0.2465 \cdot 2)) / 2 = 0.0035$

>> $\text{norminv}(\text{left_tail_size}) = -2.6968$

4. What probability will the curve cover between $x=-3$ to $+3$?

>> $\text{normcdf}(3) - \text{normcdf}(-3) = 0.9973$

5. To cover middle 80% area under the curve, we need to have the interval from $-x$ to $+x$. Find x.

>> $\text{norminv}(0.9) = 1.2816$