

7) The body temperatures of adults are normally distributed with a mean of 98.6 degree F and a standard deviation of 0.60 degree F. If 36 adults are randomly selected, find the probability that their mean body temperature is greater than 98.4 degree F.

Solution

mean = 98.6

$$\text{std. error of sample} = \frac{0.6}{\sqrt{36}} = 0.1$$
$$z - \text{score} = \frac{98.4 - 98.6}{0.1} = -2$$

by the empirical rule, we know that 95% of the population lie within 2 SD of the mean

so right tail probability = $\frac{100 - 95}{2} = 2.5\%$

a more exact value referring to z-tables = 2.275%

Answer: 2.275%.