

Methods for Describing Sets of Data

2.7 Empirical Rule

1. In 2002, the average cost of treating breast cancer was \$20,964. The standard deviation was \$4,041. The distribution of the treatments costs appears to have a bell shape. What percent of patients in 2002 would have had a treatment cost between \$16,923 and \$33,087?
2. The top 100 male finishers in the 2012 Publix Tropical 5K (3.1 miles) race in Miami had an average race completion time of 21.75 minutes and a standard deviation of 2.03 minutes. The distribution of finishing times seems to be mound shaped and symmetric. What percent of runners will finish the race under 17.69 minutes?
3. The top 100 male finishers in the 2012 Publix Tropical 5K (3.1 miles) race in Miami had an average age of 37.9 years old and a standard deviation of 13.5 years old. Assuming the distribution of ages is mound shaped and symmetric. What percent of top runners were over 51.4 years old?

Answers:

1. $34\% + 49.85\% = \mathbf{83.85\%}$. This is a good argument for having insurance.
2. 2.5% will finish in less time.
3. 16% are older.