PRE-CALC & TRIG

Day 68

Bell Work

Find the standard deviation of:

94, 90, 88, 100, 99, 92, 88, 92, 97

From Last Time

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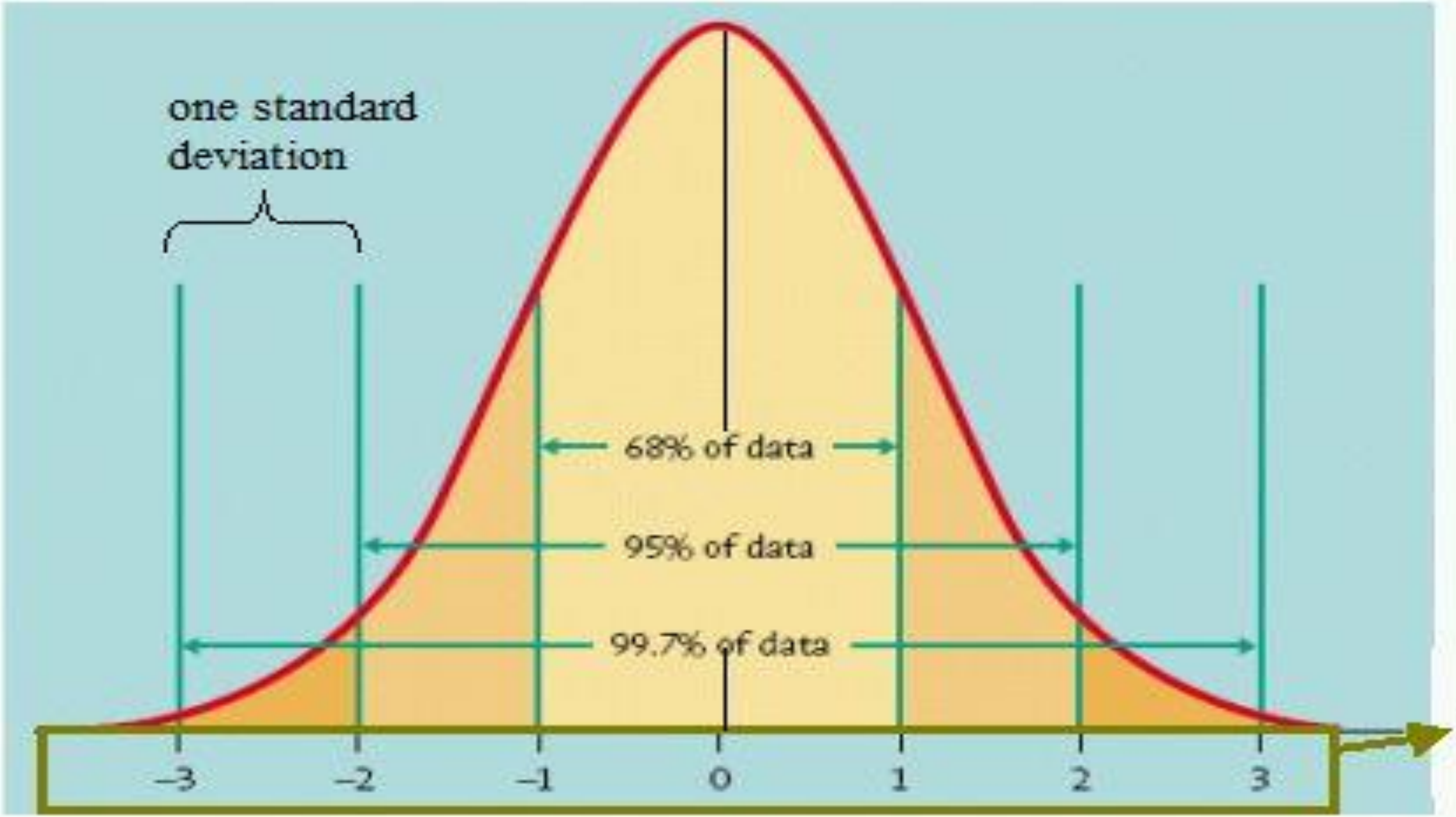
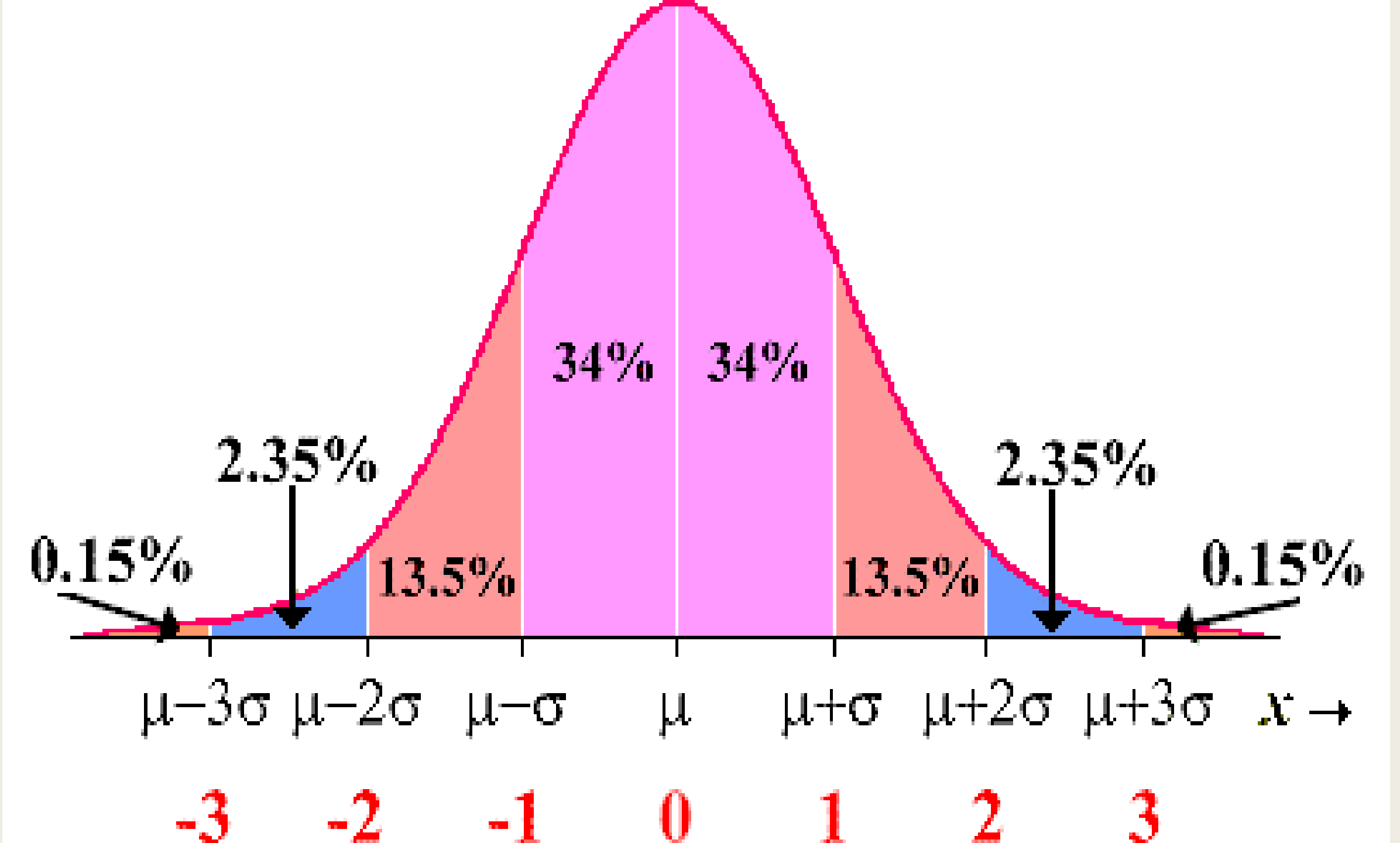
11.10 Normal Distributions

Objective: To use a normal distribution

Normal Distribution: shows data that vary randomly from the mean in the pattern of a bell-shaped curve

68% of data is within 1 Standard Deviation of the Mean
95% of data is within 2 Standard Deviation of the Mean
99.7% of data is within 3 Standard Deviation of the Mean


one standard deviation
68% of data
95% of data
99.7% of data
–3
–2
–1
0
1
2
3


34%
34%
2.35%
2.35%
0.15%
0.15%
13.5%
13.5%
μ−3σ
μ−2σ
μ−σ
μ
μ+σ
μ+2σ
μ+3σ
x →
-3
-2
-1
0
1
2
3

Sketch a normal curve for each distribution. Label the *x*-axis values at one, two, and three standard deviations from the mean.

mean = 95 standard deviation = 12	

1.) What percent of data is between 83 and 107?

2.) What percent of data is between 71 and 83?

3.) What percent of data is greater than 119?

A set of data has a normal distribution with a mean of 5.1 and a standard deviation of 0.9.
Find the percent of data within each interval.

from 4.2 to 5.1	from 6.0 to 6.9	greater than 6.9

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Find the percent of data within each interval.

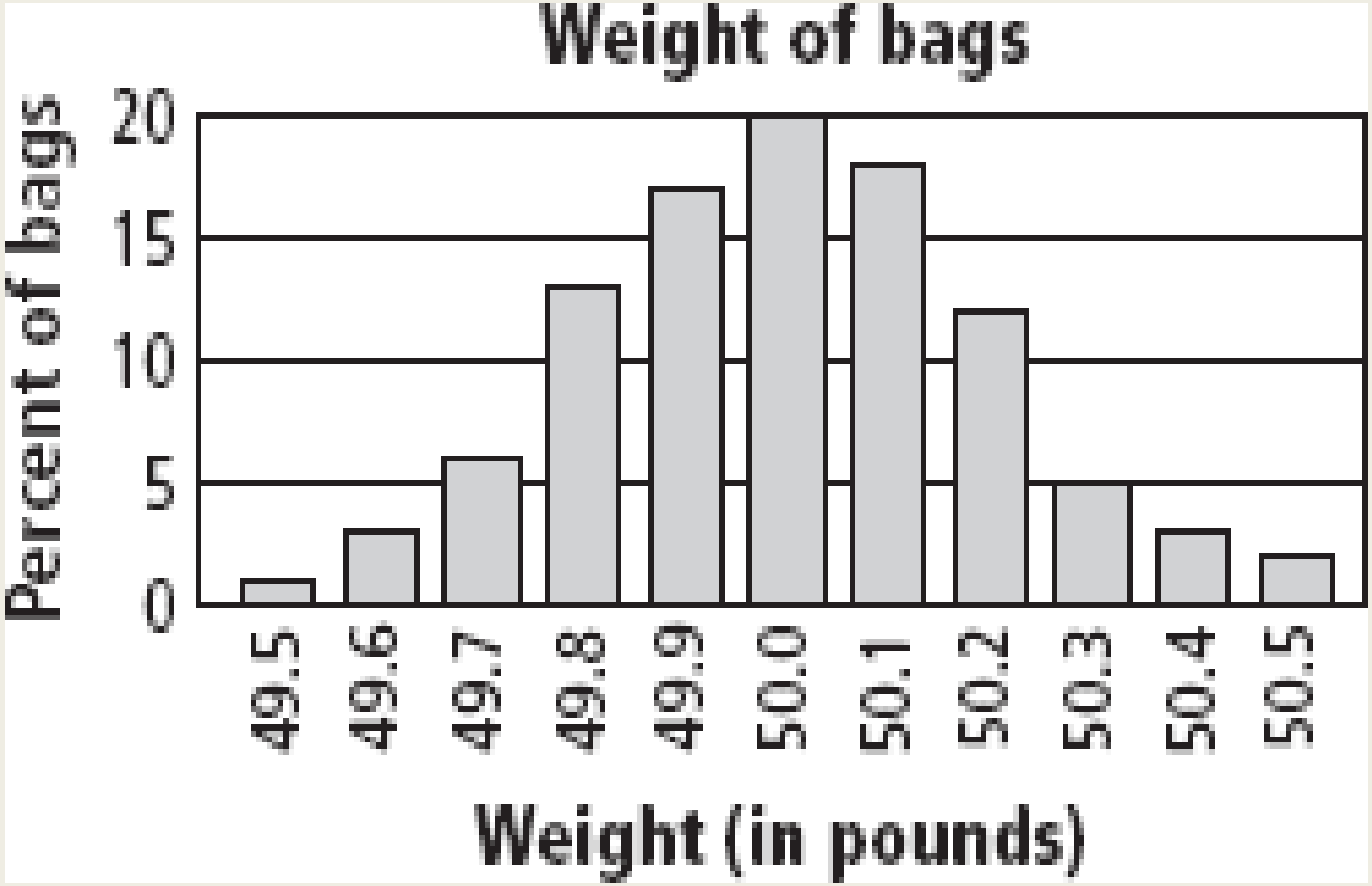
from 4.2 to 5.1	from 6.0 to 6.9	greater than 6.9
34%	13.5%	2.5%

The number of miles on a car when a certain part fails is normally distributed, with a mean of 60,000 and a standard deviation of 5000.

a. Sketch the normal curve for the distribution. Label the *x*-axis values at one, two, and three standard deviations from the mean.

b. What is the probability that the part will NOT fail between 55,000 and 65,000 miles?

The actual weights of bags of pet food are normally distributed about the mean. Use the graph at the right for Exercises 1–4.



Answers

1. About what percent of bags of pet food weigh 49.9 lb–50.1 lb?

2. About what percent of bags weigh less than 49.8 lb?

3. In a group of 250 bags, how many would you expect to weigh more than 50.4 lb?

4. The mean of the data is 50, and the standard deviation is 0.2. Approximately what percent of bags are within one standard deviation of the mean weight?

Answers

1. About what percent of bags of pet food weigh 49.9 lb–50.1 lb?

58%

2. About what percent of bags weigh less than 49.8 lb?

25%

3. In a group of 250 bags, how many would you expect to weigh more than 50.4 lb? **5% or 12-13 bags**

4. The mean of the data is 50, and the standard deviation is 0.2. Approximately what percent of bags are within one standard deviation of the mean weight? **79%**

For Next Time

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