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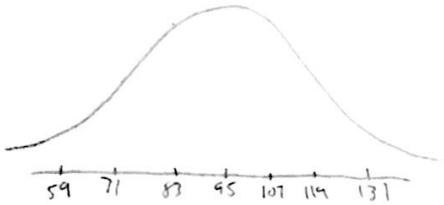
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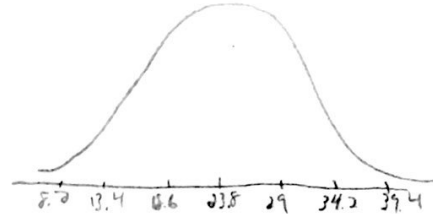
Checkpoint 9.4

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

1) mean = 95; standard deviation = 12

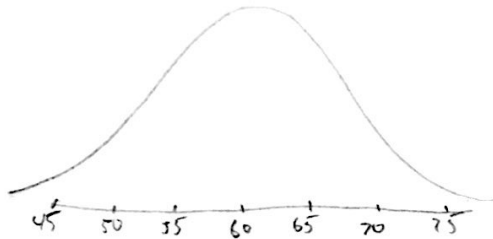


2) mean = 23.8; standard deviation = 5.2



3) 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?

32%

4) The list shows the number of siblings for each person in a class: 2, 2, 4, 2, 0, 2, 5, 2, 2, 1, 0, 2. Does the number of siblings appear close to being distributed normally? Explain.

Yes. Explanations may vary, but they should relate to the % of values within 1 std dev and 2 std dev and how it relates to the theoretical normal distribution.

5) A college only accepts students who score in the top 16% on the entrance exam. The exam scores are normally distributed, with a mean of 25 and a standard deviation of 3.8. To the nearest whole number, what is the least score you could earn and still be accepted to the college?

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6) A normal distribution has a mean of 50 and a standard deviation of 6. Find the probability that a value selected at random is in the given interval.

a. from 44 to 50

34%

b. from 38 to 56

81.5%

c. from 50 to 62

47.5%

d. at least 50

50%

e. at most 56

84%

f. at least 38

97.5%

7. A local candy store has found that kids prefer certain colors of candy regardless of their taste. For kids ages five to eight, the following data was collected. What is sample proportion of the most preferred candy color from this sample?

Blue	67
Red	89
Yellow	27
Green	13

$$0.45$$

8. You've recently been volunteering your time helping the elderly play bingo at the local retirement home. You've randomly surveyed some of the bingo players to find that they play bingo a certain amount of hours per week. What is the sample mean and standard deviation of your sample?

Senior Citizen	Hours
Henry	4
Gertrude	3
Albert	5
Mary-Jo	12
Frank	14
Penelope	16

$$\bar{x} = 9 \quad s \approx 5.66$$

9. A company specializing in building robots that clean your house has found that the average amount of time kids are forced (yes, *forced*) to spend cleaning their houses is about 2 hours per week. If their sample size was 1000 randomly chosen kids and the standard deviation was 0.3 hours, what is the margin of error for a confidence interval of 95%?

$$M.E. \approx 0.018$$

10. Of all the new 3D television users, 72% have reported not having any side effects such as vertigo, headaches, or undue eyestrain as compared to watching regular television. If this sample questionnaire had 2500 respondents, what is the margin of error? Round to the nearest hundredth decimal.

$$M.E. \approx 0.02$$

11. Suppose we want to estimate the average weight of a male in Dekalb County, Georgia. We draw a random sample of 1,000 males. We find that the average man in our sample weighs 180 pounds, and the standard deviation of the sample is 30 pounds. What is the 95% confidence interval?

$$(178.14 \text{ to } 181.86)$$

12. Sergio is in a two-person election. His campaign team commissions a poll to determine if he is ahead of his opponent. The pollster randomly chooses 500 registered voters and determines that 260 out of the 500 favor of Sergio. What is the 95% confidence interval of those who favor Sergio?

$$(0.475 \text{ to } 0.565)$$

$$47.5\% \text{ to } 56.5\%$$