Questions on Disclosure?

You will be having your first content mastery quiz on your disclosure, so get it out and review!

Feb 27-8:47 AM

Content Mastery
Quiz: Disclosure

Feb 19-2:36 PM

What are some things effective groups do to solve a problem? Work on a task?

NORMS - B5

- everyone participates & contributes ideas
- communicate well
- respect others' ideas & opinions
- teamwork
- listen to everyone's ideas
- everyone works hard
- make sure everyone understands
- cooperation
- have fun
- focus

Aug 24-1:38 PM

**Grab a package of SM3 books from the smaller ledge in front of the windows, take out a volume one and tear out ALL of chapter 1 (pages 1-46); they will tear easily if you grab all the pages at once.

Recharge It!
Normal Distributions

1.1

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PROBLEM 1 Low Battery scatter plot

Recall that a discrete graph is a graph of isolated points and a continuous graph is a graph of points that are connected by a line or smooth curve on the graph. Data can also be discrete or continuous.

Discrete data are data whose possible values are countable and often finite. The scores of baseball games are examples of discrete data, because a team's score must be a positive whole number or zero. no fractions/decimals

Continuous data are data which can take any numerical value within a range. Heights of students, times required to complete a test, and distances between cities are examples of continuous data. yes-fractions/decimals (often linked to measurement)

Suppose that two cell phone companies, E-Phone and Unlimited, claim that the cell phones of two of their comparable models have a mean battery life of 10 hours.

1. Are the durations of the cell phone batteries examples of discrete data or continuous data? Explain your reasoning.

Continuous, we can have partial hours for battery life.

2. If the mean battery life is 10 hours, does that indicate that all of E-Phone's phones and all of Unlimited's phones have a 10-hour battery life? Explain your reasoning.

No, two phones could have an average of 10 hrs. if one lasted 8 hrs. & the other lasted 12 hrs.

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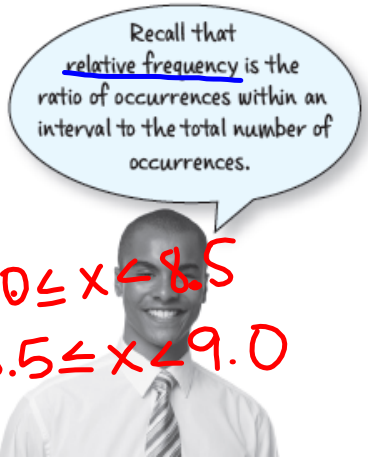
One way to display continuous data is by using a relative frequency table. The relative frequency tables shown display the battery lives of a *sample* of 100 E-Phone cell phones and 100 Unlimited cell phones.

A **sample** is a subset of data selected from a *population*. A **population** represents all the possible data that are of interest in a study or survey.

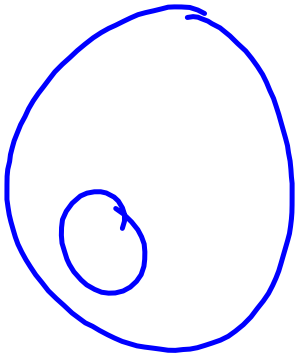
The battery lives are divided into intervals. Each interval includes the first value but does not include the second value. For example, the interval 8.0–8.5 includes phones with battery lives greater than or equal to 8 hours and less than 8.5 hours.

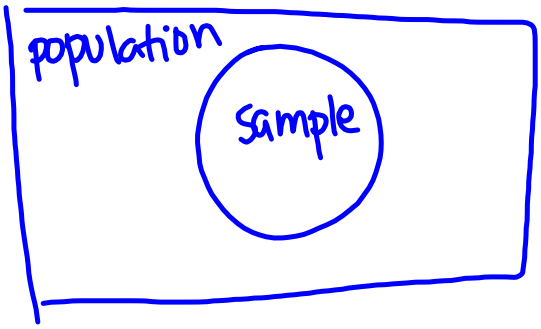


$8.0 \leq x < 8.5$

$8.5 \leq x < 9.0$

8.5 - 9.0





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NOT IN YOUR BOOK, COPY PROBLEM INTO NOTES

1. Two hundred runners completed the annual Burgoo Festival 5K race.

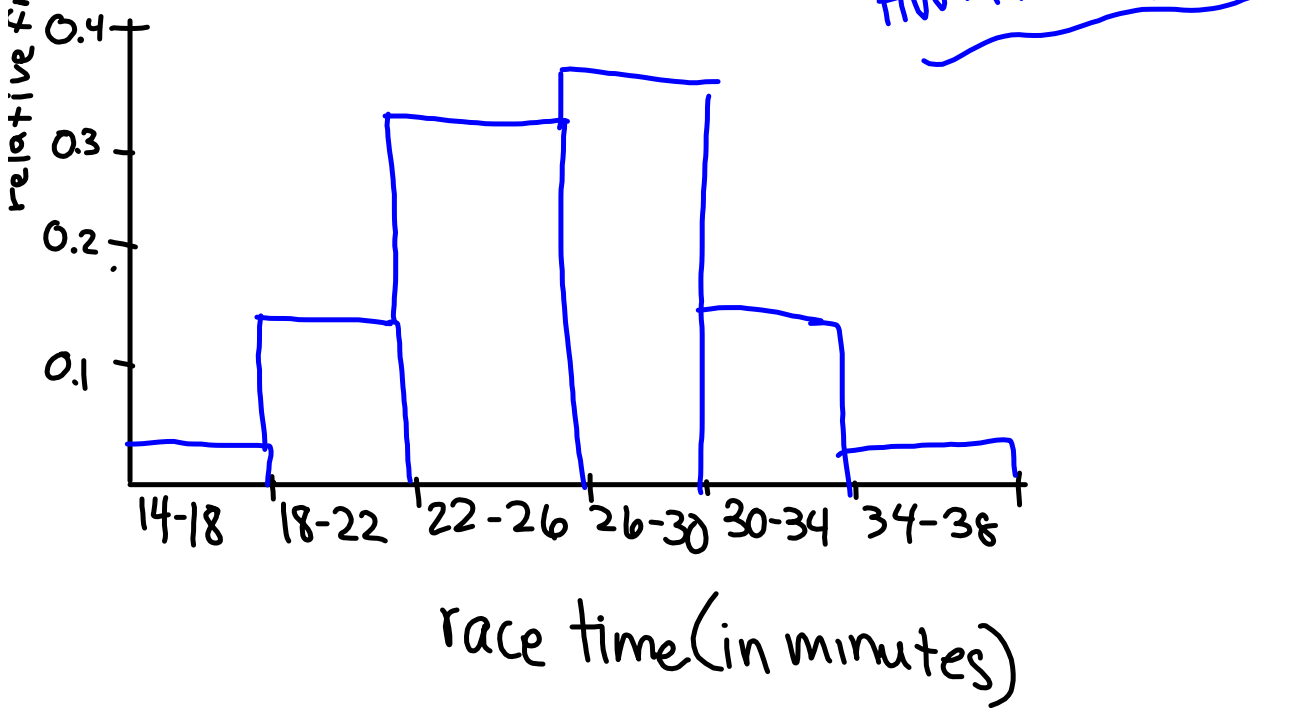
   a. The table displays the race times for the 200 runners. Complete the table by determining the relative frequency for each interval of race times.

Race Time (minutes)	TALLY	Number of Runners	Relative Frequency
14–18	𝍸 |	7	7/200 = 0.035
18–22		28	28/200 = 0.14
22–26		65	0.325
26–30		71	0.355
30–34		24	0.12
34–38		5	0.025

intervals must be the same size

   b. Create a relative frequency histogram to represent the race times of the 200 runners.

HW: Finish pgs. 3-8



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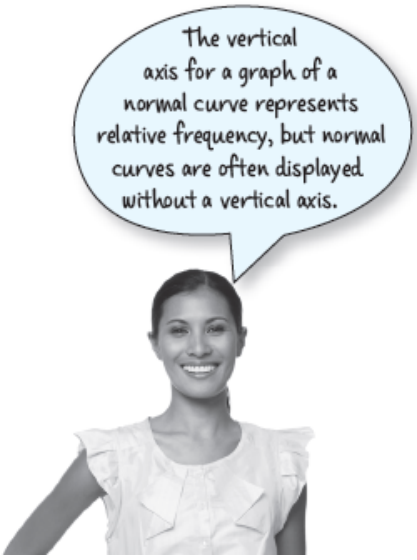
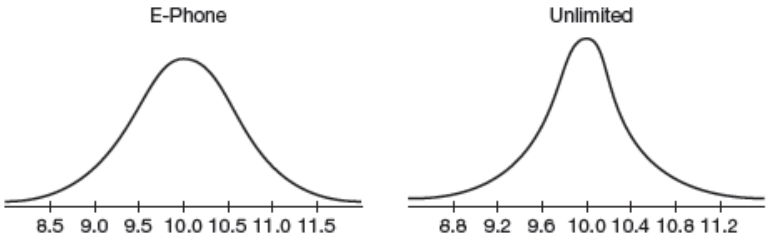
As the sample size continues to increase and the interval size continues to decrease, the shape of each relative frequency histogram will likely start to resemble a *normal curve*. A **normal curve** is a bell-shaped curve that is symmetric about the mean of the data.

A normal curve models a theoretical data set that is said to have a **normal distribution**.

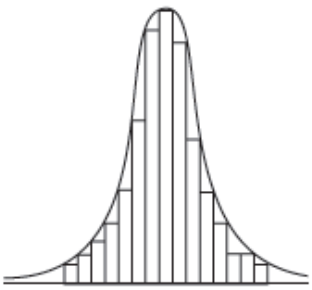
The normal curves for the E-Phone and Unlimited cell phone battery lives are shown. In order to display normal curves for each data set, different intervals were used on the horizontal axis in each graph.



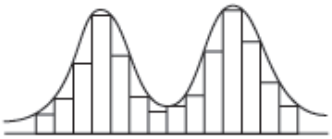


Although normal curves can be narrow or wide, all normal curves are symmetrical about the mean of the data.

Normal Distributions



Not Normal Distributions



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c. Does the distribution of the race time data appear to be a normal distribution? Explain your reasoning.

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You already know a lot about the mean. With normal curves, the **mean** of a population is represented with the symbol μ. The mean of a sample is represented with the symbol $\bar{x}$. The **standard deviation** of data is a measure of how spread out the data are from the mean. The symbol used for the standard deviation of a population is the sigma symbol (σ). The standard deviation of a sample is represented with the variable s. When interpreting the standard deviation of data:

- A lower standard deviation represents data that are more tightly clustered near the mean.
- A higher standard deviation represents data that are more spread out from the mean.

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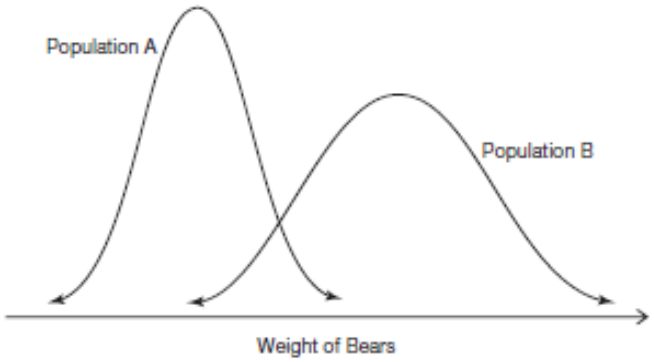
NOT IN YOUR BOOK, COPY PROBLEM INTO NOTES

2. Wildlife biologists recorded the weights of grizzly bears in 2 different populations. The normal curves represent the weights of the bears in Population A and the weights of bears in Population B.



a. Which population has the greater mean weight? Explain your reasoning.

b. Which population has the greater standard deviation? Explain your reasoning.

c. Explain what the difference in the standard deviations means in terms of the problem situation.

d. Two years after the original data was recorded, the biologists recorded the weights of the bears in Population A again. The mean weight had increased by 5 pounds, but the standard deviation remained the same. Explain what the difference in the new data and the original data means in terms of the problem situation.

e. Two years after the original data was recorded, the biologists recorded the weights of the bears in Population B again. The mean weight was the same, but the standard deviation had decreased. Explain what the difference in the new data and the original data means in terms of the problem situation.

Homework

Finish pages 3-11 in student text

Aug 24-2:00 PM