

Practice with Measures of Center/Reading Dot Plots

Name: Answers

1. Find the mean, median and mode: 5, 9, 2, 6, 10, 4

$$\text{mean} = \frac{5+9+2+6+10+4}{6}$$

$$\text{mean} = \boxed{6}$$

The is no mode.

$$2, 4, \boxed{5}, \boxed{6}, 9, 10$$

$$\text{median} = \frac{5+6}{2}$$

$$= \boxed{5.5}$$

2. What number can be added to the data set below so that the median is 16?

17, 9, 4, 16, 29, _____

4, 9, 16, 17, 29

only # 16

3. What number can be added to the data set below so that the mode is 7?

5, 7, 3, 4, 4, 6, 7, 9, _____ # 7 should be added.

4. Jae bought gifts that cost \$24, \$26, \$20 and \$18. She has one more gift to buy and wants her mean cost to be \$24. What should she spend for the last gift?

$$\frac{24+26+20+18+x}{5} = 24$$

$$5 \left(\frac{88+x}{5} \right) = (24)5$$

$$88+x = 120$$

$$\begin{array}{r} -88 \\ -88 \end{array}$$

$$\boxed{x = 32}$$

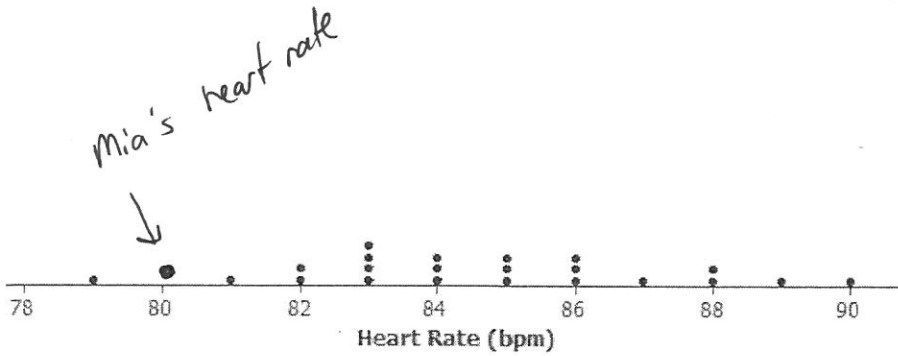
5. Mia, a 6th grader at Roosevelt Middle School, was thinking about joining the middle school track team. She read that Olympic athletes have lower resting heart rates than most people. She wondered about her own heart rate and how it would compare to other students. Mia was interested in investigating the statistical question: "What are the heart rates of the students in my 6th grade class?"

Heart rates are expressed as bpm (or beats per minute). Mia knew her resting heart rate was 80 beats per minute. She asked her teacher if she could collect the heart rates of the other students in her class. With the teacher's help, the other 6th graders in her class found their heart rates and reported them to Mia. Following are the heart rates (in beats per minute) for the 22 other students in Mia's class:

89 87 85 84 90 79 83 85 86 88 84 81 88 85 83 83 86 82 83 86 82 84

Mia noticed that there were many different heart rates. She decided to make a *dot plot* to show the different heart rates.

Dot Plot of Heart Rate



- a) What was the heart rate for the student with the lowest heart rate? 79 bpm
- b) What was the heart rate for the student with the highest heart rate? 90 bpm
- c) How many students had a heart rate greater than 86? 5 students
- d) What fraction of the students had a heart rate less than 82? $\frac{2}{22}$ or $\frac{1}{11}$
- e) What is the most common heart rate? 83 bpm
- f) What heart rate describes the center of the data? The 11th & 12th data points
84, 85 so 84.5 bpm
- g) What heart rates are the most unusual heart rates? _____
- h) If Mia's teacher asked what the typical heart rate is for 6th graders in the class, what would you tell Mia's teacher? Could use the mean or median
 mean = $\frac{1836}{22} \approx 84.7$ median = 84.5
A typical value (bpm) would be either of these.
- i) On the dot plot add a dot for Mia's heart rate.
- j) How does Mia's heart rate compare with the heart rates of the other students in the class? Hers is lower than average.

6. Last night, Jennifer and her family went out for dinner. The questions below came up on their way to the restaurant or during the meal. Decide whether or not each question is a statistical question, and justify your decision.

a) How far are we from the restaurant?

Not Statistical

Reasons: has a single answer, no variation, requires ~~no~~ no data to answer it.

b) Would Jennifer rather have burgers or pizza?

Not Statistical

Reasons: asking only one person, requires no data

c) How much should we leave for the tip?

Could be statistical

Reasons: - could collect data from opinions of many people

d) What was the most frequently ordered dish in the restaurant this evening?

Statistical

Reasons: data would need to be collected to answer.

e) Which table's bill was the highest?

Statistical

Reason: data is needed in order to answer the question

f) Do customers at the restaurant like pizza?

Statistical

Reason: Data is required in order to answer the question.

7. Listed are four statistical questions and four different dot plots of data collected to answer these questions. Match each statistical question with the appropriate dot plot. **Explain each of your choices.**

Statistical Question:

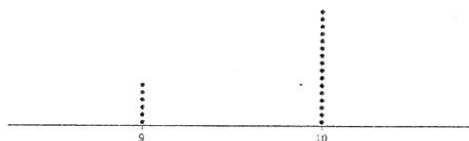
a) What are the ages of 4th graders in our school? Dot plot A
 There should be little variation and the ages match.

b) What are the heights of the players on the 8th grade boys' basketball team? Dot plot D
 There is good variation and the numbers match for inches of measure.

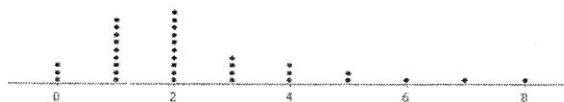
c) How many hours do 6th graders in our class watch TV on a school night? Dot plot B
 There are many data points with max 8 hours on 0 as a minimum. This matches an evening at home time wise.

d) How many different languages do students in our class speak? Dot Plot C
 All speak at least 1, 3 is rare so it matches.

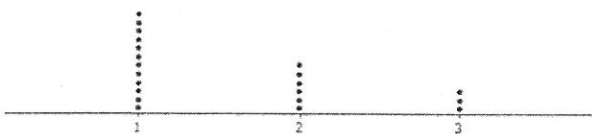
Dot plot A



Dot plot B



Dot plot C



Dot plot D

