

Quiz 1

Key

Math 1040-1

May 25, 2012

Directions: Show all work for full credit. Clearly indicate all answers. Simplify all mathematical expressions completely. Each questions is worth 10 points.

1. Identify the population and the sample for the following study:

A survey of 1442 U.S. adults found that 36% received an influenza vaccine for the current flu season. (#27 from 1.1)

Population: All U.S. Adults

Sample: The 1442 adults who were surveyed

2. Determine whether the numerical value given in the following sentence is a parameter or a statistic, and explain your answer:

In a survey of 300 computer users, 8% said their computers had malfunctions that needed to be repaired by service technicians. (#39 from 1.1)

The number 8% is a statistic since it is based on a sample of 300 computer users, not the entire population of computer users.

3. Determine whether the following data are qualitative or quantitative, and identify the data set's level of measurement (Nominal, Ordinal, Interval, or Ratio). Explain your answer:

The top five hardcover nonfiction books on *The New York Times* Best Seller List on January 19, 2010 are shown.

1. Committed
2. Have a Little Faith
3. The Checklist Manifesto
4. Going Rogue
5. Stones Into Schools

(#23 from 1.2)

The variable is qualitative, since they are labels (not numbers). The level of measurement is ordinal because they can be ordered (it cannot be interval or ratio because those are only for quantitative data).

4. Which method of data collection (Observational study, Experiment, Simulation, or Survey) would be best to study how fast a virus would spread in a metropolitan area? Explain your answer. (#15 from 1.3)

A simulation would be best to study how quickly a virus would spread, since it is too dangerous (and unethical) to carry out as an experiment. (An observation study is not practical since we would have to wait for an outbreak to occur. Depending on the virus, this could be a very long time. Also, if those conducting the study get sick, it might not be possible to collect data.)

5. Generate 5 random numbers between 1 and 99 using the following part of a table of random numbers:

92630 78240 19267 95457 53497 23894 37708 79862

(Similar to #27 in 1.3, but fewer numbers are asked for, and table is from a different book)

Since 99 is a 2-digit number, we only need to read 2 digits at a time. Starting at the beginning of the list of random numbers, the first 5 2-digit numbers are 92, 63, 7, 82, and 40. Each of those 5 numbers is between 1 and 99, so we don't need to eliminate any of them.

6. Finish the table for the given frequency distribution by adding the class midpoints, relative frequencies, and cumulative frequencies (Hint: The total number of observations is 365). (Shorter version of #15 and 17 (combined) in 2.1)

Cleveland, OH High Temperatures in °F

Class	Frequency, f	Midpoint	Relative Frequency	Cumulative Frequency
20–30	19	25	$\frac{19}{365} = 0.052$	19
31–41	43	36	$\frac{43}{365} = 0.118$	$19 + 43 = 62$
42–52	68	47	0.186	$62 + 68 = 130$
53–63	69	58	0.189	199
64–74	74	69	0.203	273
75–85	68	80	0.186	341
86–96	24	91	0.066	365