

Math 121 - Midterm 1 Review Solutions

- (a) People in the United States. (b) 9,250. (c) Obesity, smoking, whether they died before 55, blood sugar levels, cholesterol levels, blood pressure. (d) Categorical variables: obesity, smoking, whether they died before 55; Numerical variables: Blood pressure, blood sugar levels, cholesterol levels.
- B. undercoverage.
- (a) About 68%. (b) $z = 3/5 = 0.6$ so the percent above that is about 27.4%. (c) At the 90th percentile, $z = 1.28$ according to the chart, and so $x = 76.4$ days using the formula $z = \frac{x-\mu}{\sigma}$ to find x .
- (a)

1	20, 50, 60, 80
2	60, 90
3	20
4	70
5	
6	
7	
8	50
9	80

- (b) $\min = 120$, $Q_1 = 160$, $\text{median} = 275$, $Q_3 = 470$, $\max = 980$. (d) This distribution is skewed right, so the mean will be pulled up higher than the median.
- (a) You can tell it is not a true normal distribution because it is not symmetric. The 75th percentile is about \$9,000 more than the median, but the 25th percentile is less than \$8,000 below the middle. (b) The distribution is skewed right.
 - The proportion of frogs that are mutants is 8%.
 - It is a statistic because it is a number computed from a sample not from a whole population.
 - B. the 152 voters returning the questionnaire.
 - C. all voters in his district.
 - A. an observational study because the nurses were not given a treatment.
 - (a) The column proportions are:

	Helicopter	Road
Victim died	32%	20%
Victim survived	68%	80%

12. Simpson's paradox.
13. (a) The slope is 0.0138 minutes per meter. The slope tells us that for every one meter deeper that this penguin dives, it tends to stay underwater 0.0138 minutes longer. (b) 4.07 minutes.
14. D. $R = 0.8$.