

- 11) A state patrolman's radar indicates that your car is traveling 70 miles per hour; you had the cruise control set at 65 mph. What is the relative error?
 A) 5 mph B) 7.1% C) 7.7% D) 0.929
- 12) According to a specification, the nominal length of a particular manufactured part is 5.4523 cm. Quality control randomly selects one of the parts, and four different quality control technicians measure its length. Their measurements are 5.3234 cm, 5.11259 cm, 5.351 cm, and 5.45 cm. Which measurement is the most accurate?
 A) 5.3234 B) 5.11259 C) 5.351 D) 5.45
- 13) Compared with a metric scale that has grams as the smallest division, a scale with milligrams as the smallest division
 A) will guarantee measurements that are more accurate, but not necessarily more precise.
 B) will guarantee measurements that are more precise and more accurate.
 C) will guarantee measurements that are more precise, but not necessarily more accurate.
 D) will not guarantee measurements that are more accurate or more precise.
- 14) A poll was taken of a random sample of 1189 college students. Of these students, 789 reported that they had a drinking binge (more than 10 drinks in an evening) in the past month. Select the most believable conclusion.
 A) About 66.358% of college students indulged in binge drinking last month.
 B) Of the 23,456,321 college students in the country, 15,565,212 indulged in binge drinking last month.
 C) About 65% of college students indulge in binge drinking.
 D) About 65% of college students indulged in binge drinking in the past month.
- 15) Convert $\frac{5}{16}$ to a percent.
 A) 31.25% B) 0.3125% C) 3.125% D) 0.03125%
- 16) Convert -0.45 to a percent.
 A) -45% B) -0.0045% C) -4.5% D) 0.45%
- 17) Humanities majors spend an average of \$115 per course on books. Mathematics majors spend an average of \$70 per course on books. What is the percent difference between the two amounts relative to the amount for mathematics majors (round to the nearest percent)?
 A) 64% B) 39% C) -64% D) -39%
- 18) Boys spend an average of \$400 on back-to-school clothes. Girls spend an average of \$1,032. How much less is the boy's average expenditure, relatively, than the girl's expenditure (round to the nearest percent)?
 A) 61% B) 158% C) -158% D) 39%
- 19) Suppose that the cost of a statistics text was \$50 in 1985 and is \$100 in 2000. What is the 'Statistics Text Index' number, rounded to the nearest tenth, for the 2000 edition with the 1985 price as the reference value?
 A) 20.0 B) 200.0 C) 50.0 D) 2.0
- 20) A part of the CPI is given below:
- | Year | 1975 | 1980 | 1985 | 1990 | 1995 |
|------|------|------|-------|-------|-------|
| CPI | 53.8 | 82.4 | 107.6 | 130.7 | 152.4 |
- Suppose a week's groceries in 1980 cost \$70. What would these groceries cost, to the nearest dollar, 10 years later?
 A) \$38 B) \$44 C) \$111 D) \$129

19) Suppose that the cost of a statistics text was \$55 in 1985 and is \$90 in 2000. What is the 'Statistics Text Index' number, rounded to the nearest tenth, for the 1985 edition with the 2000 price as the reference value?

- A) 0.6 B) 163.6 C) 1.6 D) 61.1

20) A part of the CPI table is given below:

| Year | 1975 | 1980 | 1985 | 1990 | 1995 |
|------|------|------|-------|-------|-------|
| CPI | 53.8 | 82.4 | 107.6 | 130.7 | 152.4 |

Suppose an actuary's salary was \$86,000 in 1995. What would the salary have to have been in 1975 if it had just kept up with inflation (round to the nearest \$1000)?

- A) \$244,000 B) \$30,000 C) \$58,000 D) \$128,000

- 10) Rather than use the two scoops of coffee recommended by the manufacturer, a coffee aficionado uses three scoops of coffee per pot. What is the relative error?
- A) -50% B) $-33\frac{1}{3}\%$ C) 50% D) $33\frac{1}{3}\%$
- 11) A pharmacist puts 32 pills into a prescription order that calls for 30 pills. What is the absolute error?
- A) -6.7% B) -2 pills C) 2 pills D) 6.7%
- 12) The approximate value of π is 3.1415927. Which of the following experimentally determined values is the most accurate?
- A) 3.14 B) 3.3245 C) 3.412114 D) 3.247
- 13) Which of the following statements is correct?
- A) "Precise measurement" means the same thing as "accurate measurement".
- B) An accurate measurement must be precise.
- C) A precise measurement must be accurate.
- D) A precise measurement is not necessarily accurate.
- 14) A poll was taken of a random sample of 1189 college students. Of these students, 789 reported that they had a drinking binge (more than 10 drinks in an evening) in the past month. Select the most believable conclusion.
- A) About 66.358% of college students indulged in binge drinking last month.
- B) Of the 23,456,321 college students in the country, 15,565,212 indulged in binge drinking last month.
- C) About 65% of college students indulge in binge drinking.
- D) About 65% of college students indulged in binge drinking last month.
- 15) Convert 1779% to decimal form.
- A) 177.9 B) 17.79 C) 1.779 D) 177,900
- 16) Convert 0.0195% to decimal form.
- A) 0.000195 B) 1.95 C) 0.195 D) 19.5
- 17) A professor's checking account balance a year ago was \$1470. Currently, it is \$1040. Calculate the relative percentage change to the nearest percentage point.
- A) -41% B) 29% C) 41% D) -29%
- 18) Research shows that 15.5% of persons 20-25 years old vote and 63.5% of persons 60-65 years old vote. What is the relative change from the younger group to the older group, to the nearest percent?
- A) -48% B) 76% C) 310% D) 48%
- 19) Suppose that the cost of a statistics text was \$60 in 1985 and is \$90 in 2010. What is the 'Statistics Text Index' number, rounded to the nearest tenth, for the 2010 edition with the 1985 price as the reference value?
- A) 150 B) 66.7 C) 100.0 D) 50

20) A part of the CPI table is given below:

| Year | 1975 | 1980 | 1985 | 1990 | 1995 |
|------|------|------|-------|-------|-------|
| CPI | 53.8 | 82.4 | 107.6 | 130.7 | 152.4 |

What is the percent increase of a market basket of goods from 1975 to 1985? Round the percent to the nearest integer.

- A) 100% B) 200% C) 54% D) 50%

Statistical Reasoning for Everyday Life

Chapter 2 (Measurement in Statistics) Exam, form D

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Identify the following variables as either quantitative or qualitative in #1 and #2.

- 1) A player's number on her soccer jersey
A) Quantitative B) Qualitative
- 2) The number of textbooks owned by a student
A) Quantitative B) Qualitative

Identify the number as either continuous or discrete in #3 and #4.

- 3) The number of DIRECT TV customers
A) Continuous B) Discrete
- 4) The voltage of the electricity in a power line
A) Continuous B) Discrete

Determine which of the four levels of measurement is most appropriate in #5.

- 5) A librarian rates five books on an "ease of reading" scale from 1 (easy) to 10 (hard).
A) Nominal B) Ordinal C) Interval D) Ratio

Two statements are given in #6. Select the statement for which a ratio of the measurements is meaningful. State "Neither" or "Both" if appropriate.

- 6) 1 - Jan earned a B on her test and Bob earned a C.
2 - Bob wears size 9 shoes and Earl wears size 13.
A) Jan earned a B on her test and Bob earned a C.
B) Bob wears size 9 shoes and Earl wears size 13.
C) Neither
D) Both

Select the description that most completely classifies the given variable in #7.

- 7) A Prostate Specific Antigen (PSA) test is useful in detecting prostate cancer in men. A sample of blood is analyzed and the concentration of PSA is reported in nanograms per milliliter. Values less than 4.0 are considered normal and values over 10.0 indicate that further tests are needed. The best classification of the PSA variable is
A) Nominal B) Qualitative, Ordinal
C) Quantitative, Continuous D) Quantitative, Discrete
- 8) Amtrak passenger trains are often late in arriving at their destinations. Identify the potential error in arrival time as systematic or random.
A) Systematic B) Random

- 18) On September 28, 2012 the average price of a gallon of regular unleaded gas in Eau Claire, WI was \$3.89 while in Appleton, WI, the average price was \$3.74. What is the percentage difference in price in Appleton (to the nearest tenth of a percent) relative to the price in Eau Claire?
- A) -3.9% B) 3.9% C) -4.0% D) 4.0%
- 19) Suppose that the cost of a statistics text was \$45 in 1980 and \$76 in 2005. What is the Statistics Text Index number, rounded to the nearest tenth, for the 1980 edition with the 2005 price as the reference value?
- A) 0.6 B) 5.9 C) 59.2 D) 168.9
- 20) A part of the CPI table is given below:

| Year | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 |
|------|------|------|-------|-------|-------|-------|-------|
| CPI | 53.8 | 82.4 | 107.6 | 130.7 | 152.4 | 172.2 | 195.3 |

- Suppose that a statistician's salary was \$64000 in 1985. What would the salary have to be in 2005 to keep up with inflation (rounded to the nearest \$1000)?
- A) \$125,000 B) \$69,000 C) \$116,000 D) \$35,000