

1. Davida received the following grades last semester. What is her semester GPA?

course	Hours	Grade
Engl	3	<i>B</i>
Math	4	<i>B</i>
Soc	3	<i>A</i>
Hist	3	<i>D</i>
Coms	3	<i>C</i>

(a)0.81 (b)2.19 (c)2.63 (d)2.70 (e)3.20

2. The mean of the data set $\{0, 1, 1, 2, 3\}$ is 1.4. What is the standard deviation?

(a)1.02 (b)1.21 (c)1.23 (d)1.51 (e)6.04

3. A television research company has used a lottery to choose 25 viewers from each of three different age groups for a survey. This collection of people is

- (a) a census.
- (b) a judgement sample.
- (c) a simple random sample.
- (d) a stratified random sample.
- (e) a sampling distribution.

THE NEXT TWO QUESTIONS CONCERN THE FOLLOWING SITUATION.

The lifespans of AK electric motors are normally distributed with a mean lifespan of 20,000 hours and a standard deviation of 1000 hours.

4. Which of the following statements about these motors is FALSE?
- (a) About half the motors will last 20,000 hours or longer.
 - (b) Less than 1% of the motors will last less than 17,000 hours.
 - (c) About 95% of the motors will last between 18,000 hours and 22,000 hours.

- (d) About 68% of the motors will last between 19,000 hours and 21,000 hours.
 - (e) About 34% of the motors will last between 21,000 and 22,000 hours.
5. If there are 19,942 motors in a shipment, then about how many motors will last at least 19,500 hours?
- (a)19.2%(b)30.8%(c)34.1%(d)15.9%(e)69.2%

6. Acme glass produces 1,200,000 glass marbles a day. These marbles have a mean weight of 9.6 grams and a standard deviation of 0.3 grams. The marbles are packaged in bags of 25.

If the average weights of marbles in a large number of bags is computed and recorded, then what can be said about the mean \bar{x} and the standard deviation, $\sigma_{\bar{x}}$, of the resulting distribution?

- (a) $\bar{x} < 9.6$ and $\sigma_{\bar{x}} < 0.3$.
 - (b) $\bar{x} = 9.6$ and $\sigma_{\bar{x}} < 0.3$.
 - (c) $\bar{x} = 9.6$ and $\sigma_{\bar{x}} = 0.3$.
 - (d) $\bar{x} > 9.6$ and $\sigma_{\bar{x}} = 0.3$.
 - (e) $\bar{x} > 9.6$ and $\sigma_{\bar{x}} > 0.3$.
7. A weather report states that there is a 0.70 probability (70% chance) of rain. Which of the following is TRUE?
- (a) This is an empirical probability
 - (b) this is an *a priori* probability
 - (c) this means that it will rain 70% of the day.
 - (d) there is a $\frac{1}{3}$ probability that it will not rain.
 - (e) Only 70% of people will see it rain.

The following two questions concern the following situation.
Linda has 3 quarters, 7 dimes, 6 nickels, and 11 pennies in the bottom of her purse.

8. A coin fell out of her purse when she opened it to get a pen. What is the probability that the coin was a dime?
- (a) .26.
 - (b) .11.
 - (c) .22.
 - (d) .41.
 - (e) 3.86.
9. Now suppose that Linda has already lost a dime, and that when she reaches into her purse for her checkbook, she loses another coin. What is the probability that this coin is a nickel.
- (a) .11.
 - (b) .22.
 - (c) .23.
 - (d) .06.
 - (e) .47.
10. Theresa has six \$1 dollar bills, 3 \$5 dollar bills, two \$10 dollar bills and three \$20 dollar bills. All of the bills are in a stack. What is the probability that the top bill is a \$20.
- (a) $\frac{1}{14}$
 - (b) $\frac{3}{14}$
 - (c) $\frac{1}{5}$
 - (d) $\frac{3}{20}$
 - (e) $\frac{6}{16}$
11. You roll two dice. What is the probability that one, but not both, of the dice turns up a 6?
- (a) 0.0278
 - (b) 0.0667

(c) 0.3056

(d) 0.2778

(e) 0.9722

$$\sigma = \sqrt{\frac{(X_1 - \mu)^2 + (X_2 - \mu)^2 + \cdots + (X_n - \mu)^2}{n}}$$

$$\sigma_{\bar{x}} = \begin{cases} \frac{\sigma}{\sqrt{n}} & \text{if pop. is infinite} \\ \frac{\sigma}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}} & \text{if pop. size is } N \end{cases}$$