Math 10 Fall 2015 <u>FORM A</u>   Name Last:_____ First:_____

Exam 1: Chapters 1, 2, 3   **Class Time:_____**

- Print your **NAME** and **CLASS TIME** on **THIS EXAM**
- Print your **NAME** and **CLASS TIME** on your **SCANTRON**.
- Write **FORM A** on your **SCANTRON**.
- Turn your cell phone OFF. Any noise from a cell phone will signal that your exam is over.
- Each question has exactly one BEST answer. There are 21 questions.
- You may write on this exam. There is no scratch paper allowed.
- Each question is worth 5 points for a total of 105 points.
- **If you have no note page**, you must write **<u>NO NOTES</u>** on your **SCANTRON**.
- Put your SCANTRON and PAGE of NOTES inside your EXAM. Before you start packing up your things, turn in your EXAM and SCANTRON. Then go back to your desk to pack up your materials. When your exam is returned, you will get back all your materials.
- **FAILURE TO FOLLOW ALL INSTRUCTIONS WILL COST YOU 5 POINTS!**

1. The second week of Fall Quarter, Thuy did graded work in 3 classes. Her scores are summarized below, along with the summary statistics for the grades of all students in those classes.

	Thuy's Grade	Class Average	Class Standard Deviation
English Essay	20	16	5
Statistics Quiz	15	12	4
Chemistry Lab	45	40	6

On which graded work did she perform best when compared to the other students in her classes?
    A. English Essay
    B. Statistics Quiz
    C. Chemistry Lab
    D. Unable to determine because we do not have all other students' data

Questions 2 - 5 refer to the following:

The marketing research team at a major food company had just completed a study of consumers' preferences for popular types of soups being sold in four major metropolitan areas. The results from the 4,570 consumers are summarized below.

Area	Type of Soup				
	Chicken (C)	Vegetable (V)	Mushroom (M)	Beef (B)	Totals
New York (N)	280	410	138	170	998
Dallas (D)	174	249	162	102	687
Chicago (G)	146	280	190	158	774
Los Angeles (L)	560	711	580	260	2111
Totals	1160	1650	1070	690	4570

Suppose a single consumer in the study is randomly selected:

2. Find the probability that the consumer prefers vegetable soup and is from the Dallas area.

A. 687/4570   B. 249/687   C. 687/1650   D. 249/4570

3. Find the probability that the consumer is from the Chicago area, given that he/she prefers beef soup.

A. 774/4570   B. 158/690   C. 158/774   D. 690/4570

4. Find the probability that the consumer is from the Los Angeles area or prefers mushroom soup.

A. 580/4570   B. 3181/4570   C. 2601/4570   D. 580/2111

5. Are being from the New York area (N) and preferring chicken soup (C) independent?

    I. No, because P(N and C) ≠ 0
    II. No, because P(N|C) ≠ P(N)
    III. No, because P(N and C) ≠ P(N)·P(C)
   IV. Yes, N and C are independent

A. I only   B. IV only   C. III only   D. II, III only

Questions 6 – 9 refer to the following:

A survey asked 32 randomly selectedstudents how many classes they are taking in Fall 2015. The resuslts are in the table below.

Number of classes	Frequency	Relative frequency	Cum. Relative Freq.
1	10	0.3125	
2	6	0.1875	
3			
4	4	0.1250	
5	3	0.0938	
6	3		
7	1	0.0313	1.0000

6. Which of the following box plots most accurately displays the data?

A.

B.

C.

D.
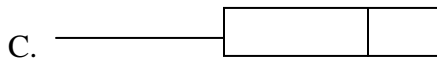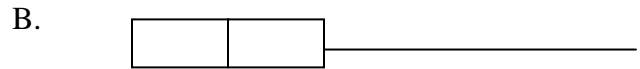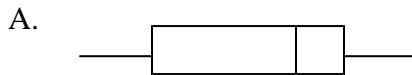
7. The mean and standard deviation of the sample data are

    A. mean 4.00, standard deviation 2.00
    B. mean 2.91, standard deviation 1.81
    C. mean 2.91, standard deviation 1.84
    D. mean 3.50, standard deviation 2.16

8. The median and mode are of the sample data are

    A. median 2, mode 1
    B. median 2.5, mode 10
    C. median 2, mode 10
    D median 2.5, mode 1

9. Interpret the 65th percentile

    A. 65 percent of students are taking at least 3 classes.
    B. 65 percent of students are taking at most 3 classes.
    C. 65 percent of students are taking at most 3.5 classes.
    D. 65 percent of students are taking fewer than 3 classes.

Questions 10 – 14 refer to the following:

We are interested in the proportion of students in all De Anza Math 10 classes this quarter that plan to transfer to a 4-year school. We randomly select 3 Math 10 classes and interview all students in those 3 classes.

10. The proportion of students in the 3 Math 10 classes that answer "yes" to "Do you plan to transfer to a 4-year school?" is

    A. data.   B. a statistic.   C. a parameter.   D. a population

11. The population is:

    A. All the students in the 3 selected Math 10 classes.
    B. All De Anza students.
    C. All the students in one Math 10 section.
    D. All the students in Math 10 classes this quarter.

12. The answer to, "Do you plan to transfer to a 4-year school?" is

    A. quantitative.
    B. quantitative discrete.
    C. qualitative.
    D. complex.

13. A student's answer "no" to the question "Do you plan to transfer to a 4-year school?" is an example of

    A. data.   B. a statistic.   C. a parameter.   D. a population.

14. The sampling described is what kind of sample?

    A. stratified
    B. convenience
    C. systematic
    D. cluster

15. At a community college, 35% of students are full-time students. 72% of all students work at jobs for pay. 54% of full-time students work at jobs for pay. Find the probability that a student is full-time and works at a job for pay.

     A. 0.189   B. 0.252   C. 0.890   D. 0.389

16. The cars in Parking Lot A at De Anza College are the population. The parameter to be studied is the make of the car. A sample is conducted by taking every 10th car in the parking lot. What type of sampling is this?

     A. stratified
     B. cluster
     C. systematic
     D. convenience

Questions 17 - 19 refer to the following:

The test scores of 15 employees enrolled in a CPR training course are:

     0, 7, 9, 10, 11, 13, 13, 13, 15, 16, 18, 18, 18, 20, 20

17. The interquartile range of the test scores is

     A. 8   B. 8.5   C. 9   D. 9.5
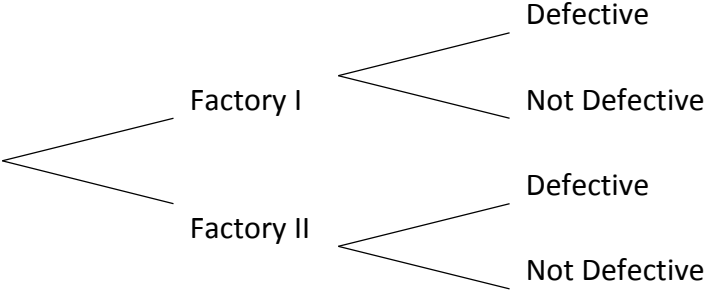
18. The outliers are:

     A. 0   B. 20   C. No outliers   D. 0 and 20

19. The histogram of this data looks to be

     A. Skewed right   B. Skewed left   C. Symmetrical D. Cannot be determined

20. Cars are being produced by two factories. Factory I produces 60% of the cars and 3% of those are defective. Factory II produces 40% of the cars and 4% of those are defective cars. car is chosen at random. Find the probabiltiy that a randomly chosen car is defective. [HINT: use a tree diagram]

```
                                    Defective
                                   /
              Factory I
                       \
                        Not Defective
    /
   /
    \
     \
      Factory II
                                    Defective
                                   /
                       \
                        Not Defective
```

A. 0.0340   B. 0.0700   C. 0.0160   D. 0.0180

21. At a college, 20% of the students take history, 30% take math and 10% take both. What percent of the student body takes history or math?

A. 50%   B. 40%   C. 70%   D. 60%

Math 10 Fall 2015 FORM B   Name Last:_____ First:_____

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    A. 0.189   B. 0.252   C. 0.890   D. 0.389

2. The cars in Parking Lot A at De Anza College are the population.   The parameter to be studied is the make of the car.   A sample is conducted by taking every 10th car in the parking lot. What type of sampling is this?

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    B. cluster
    C. systematic
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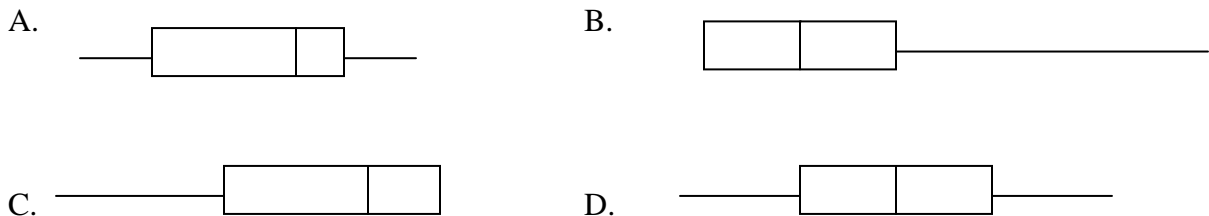   B. convenience
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```
                          Defective
              Factory I <
                          Not Defective

    <
                          Defective
              Factory II <
                          Not Defective
```
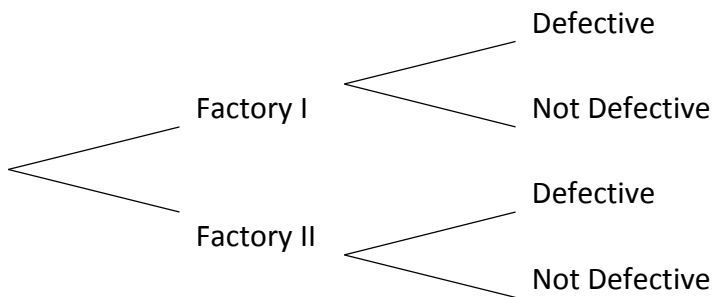
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     III. No, because $P(N \text{ and } C) \neq P(N) \cdot P(C)$
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ANSWER KEY EXAM 1 FALL 2015

Number	Form A	Form B
1	C	A
2	D	C
3	B	B
4	C	D
5	D	C
6	B	A
7	C	D
8	D	B
9	B	C
10	B	D
11	D	B
12	C	C
13	A	A
14	D	B
15	A	D
16	C	B
17	A	C
18	C	D
19	B	A
20	A	C
21	B	B