

# Exam 2

*In this exam, you are not to use cell phones as calculator alternatives.*

Each question has 5 points value.

Name:

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Score							

1. A survey in USA Today reports that 25% of the 1018 households surveyed stated that their favorite shopping day was Saturday.
  - a. What is the implied population?

- b. What is the sample?

2. Out of 11 possible points, a class of 20 students made the following test scores. (Assume **the 20 students** are a sample drawn from the population of the students at the school.)  
1, 1, 2, 3, 5, 5, 6, 7, 7, 7, 8, 9, 9, 9, 9, 10, 10, 10, 11, 11
  - a. Fill out the blanks in the frequency table.

Points	Frequency
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

Fill the blanks.

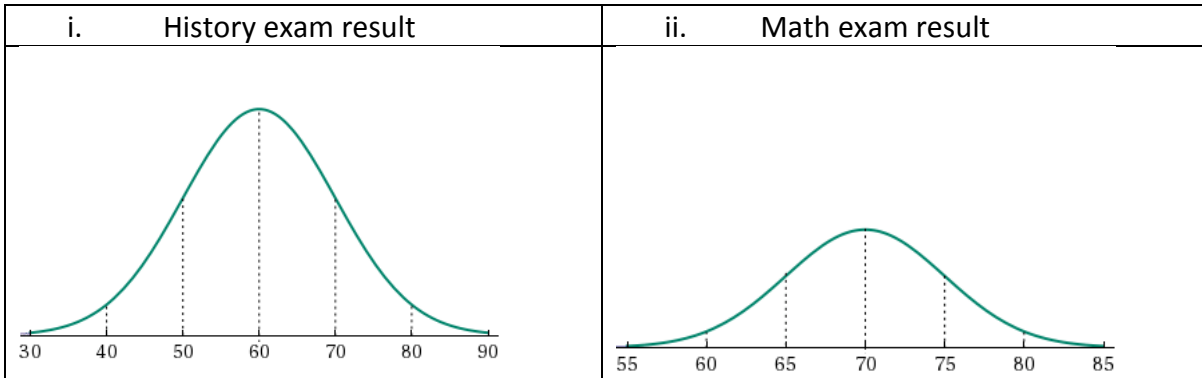
b.	Mode	
c.	Median	
d.	mean	

e. Fill the blanks.

Points	$x - \bar{x}$	$(x - \bar{x})^2$	$(x - \bar{x})^2 \times \text{Frequency}$
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
Total			

f. By using e, find the standard deviation. Remark:  $s = \sqrt{\frac{(x_1 - \bar{x})^2 + \dots + (x_n - \bar{x})^2}{n-1}}$

3. Examine the normal distribution shown.



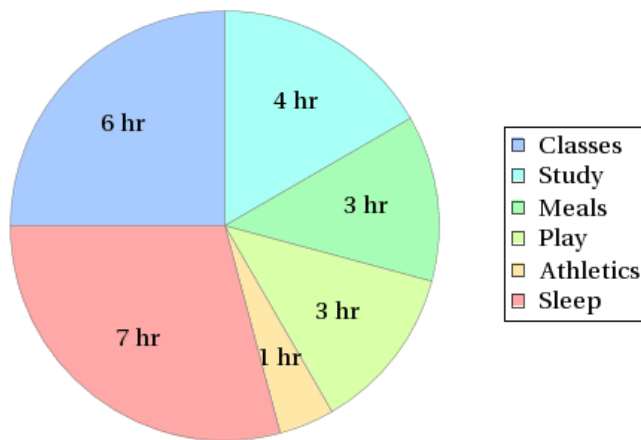
- Write the mean of the curve i and the curve ii.  
 Mean of the curve i= \_\_\_\_\_      Mean of the curve ii= \_\_\_\_\_
- Write the standard deviation of the curve i and the curve ii.  
 Standard deviation of i= \_\_\_\_\_      Standard deviation of ii= \_\_\_\_\_
- In the distribution i, what value corresponds to a z-score of +1?
- In the distribution ii, what value corresponds to the z-score of 0?
- Melissa got 70 points in both history and math exam. In what exam Melissa did relatively better? Justify your answer.

4. Assume a normally distributed set of test scores with a mean of  $\mu = 100$  and a standard deviation of 20.

a. Calculate the z-score of 50.

b. Find the probability that a person selected at random will have **less than** 50. (Round your answers to three decimal places.)

5. The circle graph shows Harry's time allotment for Mondays, Wednesdays, and Fridays. What percent of the time is Harry allowing for classes and study?



Find the fraction of the day Harry is allowing for classes and study is as follows. (Round your answer to one decimal place.)

6. How much of the trash is recycled? The table shows the amount of paper and paperboard recycled from 1980 to 2000. Let  $x$  represent the year after 1980 (1980 is year 0) and  $y$  represent the amount of trash (millions of tons).

Year	Million Tons
1980	25
1990	40
2000	80

- a. Draw the graph for these data.

b. Fill the blanks and find the equation of the regression line for the data.

Year	$x$ (Corresponding number in the $x$ -axis)	$y$ (Million Tons)	$x^2$	$xy$
1980	0	25		
1990		40		
2000		80		
Total	$\sum x =$	$\sum y =$	$\sum x^2 =$	$\sum xy =$

Remark:

$$\text{Slope} = m = \frac{n \sum(xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2} \quad \text{Intercept} = b = \frac{(\sum x^2)(\sum y) - (\sum x)(\sum xy)}{n(\sum x^2) - (\sum x)^2}$$

$y = mx + b$ : equation of the regression line

c. Use the equation to predict the amount of paper and paperboard that will be recycled in 2010 and 2015.