1st Study Guide for FINAL
Math 304
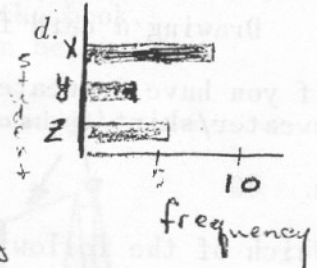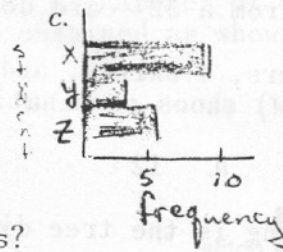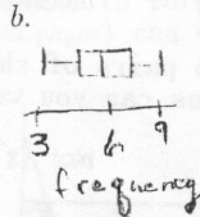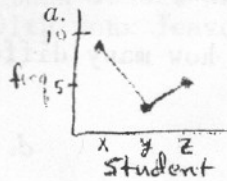
I. *Statistics*

Multiple Choice: (Show your <u>work</u>)

1. Which one graph best represents the data shown?

Student	Frequency
x	ЖЖ IIII
y	III
z	ЖЖ I

2. Which is *true* when comparing two sets of scores?

   (*i*) The larger standard deviation comes from the set with the larger mean.

   (*ii*) If the means are equal, so are the variances.

   a. *i* only   b. *ii* only   c. *i* and *ii*   d. Neither is true.

3. Which of the following is *false* about a normal distribution?

   (*i*) Mean = median

   (*ii*) The higher the standard deviation, the higher the "peak".

   (*iii*) The interval from 2 standard deviations below the mean to 2 standard deviations above the mean contains about 68% of the measurements.

   a. *i* and *ii* only.   b. *i* and *iii* only.   c. *ii* and *iii* only.   d. None of a, b, or c.

Short Answer:

4. Which type of graph would be best to illustrate relative amounts of chemicals in a substance? Why?

5. Which measure of central tendency is most affected by one extremely low score? Explain.
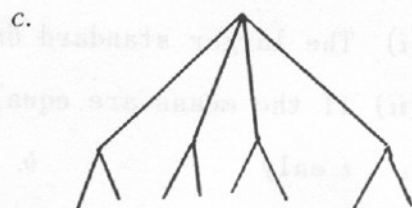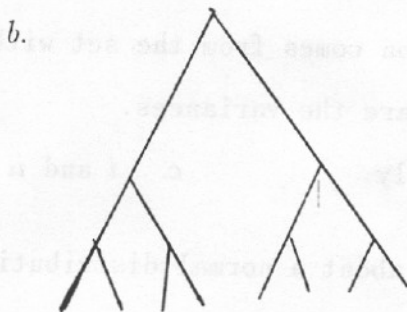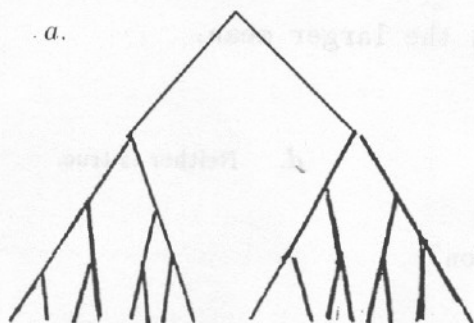
$\{24, 72, 79, 83, 85, 96, 99, 123\}$

a) Find the mean

6. The following test scores have been recorded by Ms. Burton. b) What is the z-score (to the nearest hundredth) for the second to the highest score? Given: standard deviation = 25.5. c) What percent of the scores are less than that score using your z-Table?

II. *Probability*

Multiple Choice:

1. Which of the sample spaces for the following experiments consists of an odd number of elements?

    a. Tossing 3 dice

    b. Tossing 7 coins

    c. Drawing a card from a 52 – card deck

    d. None of a, b, or c.

2. If you have 3 sweaters, 4 skirts, and 5 pairs of shows, how many different sweater/skirt/(pairs of) shoes combinations can you wear?

    a. 60

    b. 12

    c. $(3^4)^5$

    d. None of a, b, or c.

3. Which of the following is the tree diagram for the experiment "toss 4 coins"?

    a.

    b.

    c.

    d. None of a, b, or c.
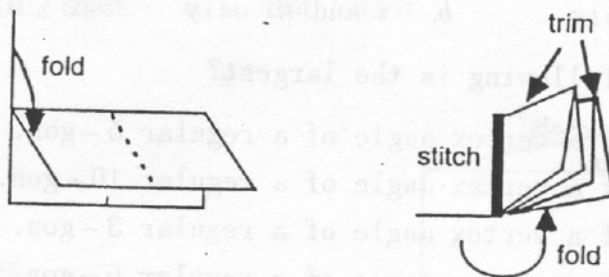
Short Answer:

4. What is the probability of tossing at least two heads if six coins are tossed?

5. There are 26 names in a hat, 13 girls' names, and 13 guys' names. What is the probability that 2 girls' names will be drawn?

6. The odds that the horse Apollo 1000 wins Race 1 are 4:5, and the odds that he wins Race 6 are 11:3. What is the probability that he wins both Race 1 and Race 6?

Application/Problem Solving:

7. Rosa has tossed a coin 9 times and each time it has landed as a head. She claims that the probability of a tail on the next toss is greater than the probability of another head. Is she correct? Why or why not?

Application/Problem Solving:

8. Draw a shape that fits the following description: It is a closed figure with 4 straight sides. It has 2 long sides and 2 short sides. The 2 long sides are parallel but not the same length. The 2 short sides are not parallel. It has exactly 2 right angles.

9. In preparing a book, it is usual to print several pages on a large sheet of paper The paper is then folded and trimmed to form a "signature" of the book. A signature with four leave (eight pages) can be obtained as shown below:

a. How should the 8 pages be printed on the sheet so that they will be in the right order and right side up when the sheet is folded and stitched?

10. Professor Craig's office has a leaky roof that drips once every 2 seconds. He collect the water in a cylindrical bucket that is 30 cm across and 30 cm high. In about how days will the bucket be filled? (Assume 1 drop has a capacity of 1 ml.)

III. *Geometric Shapes*

Multiple Choice:

1. Which of the following regular polygons could *not* be used to tile a floor?

   a. 3 – gon   b. 4 – gon   c. 5 – gon   d. 6 – gon

2. Which of these polygons always has rotation symmetry (through an angle less than 360°)?

   (*i*) parallelogram   (*ii*) rectangle   (*iii*) trapezoid

   a. *i* and *ii* only   b. *i* and *iii* only   c. *ii* and *iii* only   d. None of a, b, or c.

3. Which of the following is the largest?

   a. Measure of a vertex angle of a regular 5 – gon.
   b. Measure of a vertex angle of a regular 10 – gon.
   c. Measure of a vertex angle of a regular 3 – gon.
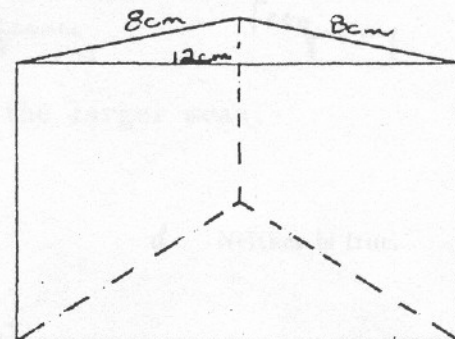   d. Measure of a vertex angle of a regular 6 – gon.

Short Answer:

4. What is the name of a polyhedron with two parallel opposite faces that are identical 7 – sided polygons with rectangular lateral faces?

5. How many faces in total does a hexagonal prism have?

6. Which regular polygon has a vertex angle sum of 900°?

7. Compare and contrast the properties that rectangles and squares possess.

8. List the properties of a tetrahedron?

IV. Measurement

Multiple Choice:

1. The length of an average city block is closest to:

   a. $1/10\ km$ b. $10\ km$ c. $10\ m$ d. $1000\ cm$

2. Which of the following is equivalent to $20,000\ cm^3$:

   a. $20\ dam^3$ b. $0.02\ dam^3$ c. $0.002\ dam^3$ d. $0.00002\ dam^3$
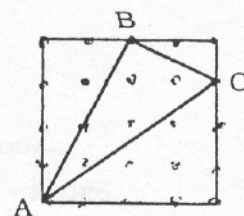
3. The surface area of the right triangular prism is:

   a. $280\ cm^2$ b. $343.5\ cm^2$ c. $768\ cm^2$ d. $7680\ cm^2$

Short Answer:

4. Order these from least to greatest:

   (i) $3\ m$ (ii) $300\ mm$ (iii) $3\ cm$ (iv) $0.03\ km$

5. The water in a jug has a mass of $4.7\ kg$. What is the capacity of the jug in milliliters?

6. A sheet of plywood is $2.4\ m$ long, $1.2\ m$ wide, and $1.5\ cm$ thick. What is its volume in cm^3?

7. Find the area of triangle ABC in square units. $\square$ = 1 square unit.

8. If the area of a circle is twice the radius, then what is the circumference of the circle?