

A118 Finite Mathematics
Review for Final Exam

1. Different types of cameras are available to record memories of family, vacations, and special moments. A survey of 1000 cameras purchased last year showed that 450 were 35 mm, 210 were instant, 300 were digital and 40 were other types.

- a) Organize the data in a table
- b) Make a circle graph showing the camera types and percent for each type
- c) Make a Pareto chart of the same data

2. The number of hamburgers sold by McDouglas hamburger stands in each of the 50 states during August last year was as follows (in thousands of hamburgers)

86	70	38	100	115	135	51	72	53	65
110	136	56	25	42	60	93	23	58	96
108	131	148	150	73	156	82	71	173	200
147	68	92	15	119	110	172	183	66	65
52	97	212	63	88	93	88	95	31	44

- a) Make a frequency table using 10 classes.
- b) Make a histogram. Classify its shape as symmetric, skewed left, skewed right, or uniform

3. The mean income for veterinarians has been reported to be \$98,725 per year with a standard deviation of \$5,025. The mean income for dentists practicing alone was cited as \$101,500 with standard deviation \$2,500.

- a) Use Chebyshev's theorem to find an interval for which at least 75% of the veterinarians' incomes must lie between.
- b) Use Chebyshev's theorem to find an interval for which at least 75% of the dentists' incomes must lie between.
- c) Compute the Coefficient of Variation (CV) for both. Which profession has more variability in income based on a percentage of the mean.

4. The Softex Plastic Company tested a random sample of 12 pieces of new plastic for breaking strength. They obtained the following measurements in units of thousand pounds per square inch:

2.0	2.3	4.1	3.3	1.9	3.5	3.4	1.8	4.0	2.7	3.9	2.6
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- a) Find the mean, median, and mode and explain the meaning of each of these
- b) Find the standard deviation
- c) Make a 5 number summary of the data (low, Q1, Median, Q3, high)

5. Joanne is the general manager of a large new office complex with eight new photocopying machines. Over the past year she obtained the following data where x = the number of copies made by a machine in thousands
 y = total maintenance cost of this machine in dollars

x	22	18	27	29	32	25	20	10
y	38	32	45	49	54	42	35	19

- Draw a scatter diagram
- Is the linear correlation high, moderate, or none?
- Find the equation of the trendline (linear regression line)
- Use the equation to estimate the cost for a machine that has made 30 thousand copies.

6. The Aim 'n Shoot Camera company wants to estimate the probability that one of their cameras is defective. A random sample of 400 new cameras shows that 24 are defective. What is the probability that a camera selected at random will be defective?

7. In a market survey, a random sample of people were asked two questions. Did they buy Sparkle toothpaste last month and did they see an ad for Sparkle on TV last month. The responses are in the table:

	Bought Sparkle	Did not buy Sparkle	Total
Saw ad on TV	25	50	75
Did not see ad	20	40	60
Total	45	90	135

If a customer is selected at random from this group, find the probability that:

- The customer saw the ad
- The customer saw the ad and bought Sparkle toothpaste
- The customer bought Sparkle toothpaste given that the customer saw the ad

8. The college health center did a campus-wide survey of students and found that 12% smoke. A group of 10 students randomly come together on the patio outside the student cafeteria and sit at the same table. Assume that a student who ordinarily smokes will smoke at this time. Find the probability that

- no one at the table smokes
- at least one student smokes
- more than 5 students smoke
- all the students smoke

9. An insurance company says that the probability a fire is caused by arson is 15%. A random sample of 5 fire insurance claims is under study.

- a) Make a binomial distribution table for $r = 0, 1, 2, 3, 4, 5$
- b) Make a histogram for this distribution
- c) Classify the histogram as symmetric, skewed left, or skewed right

10. It has been estimated that 20% of the population is left handed.

- a) What is the expected number of left-handed people in a random group of 30 people?
- b) Find the standard deviation of this binomial distribution