MATH 115
SPRING 2018
EXAM 2

NAME:

1. [20 pts.] Find the mean, median, mode, and midrange of the following data:

18 36 29 30 30 28 31 27 29 24 29 28 25 20

2. [20 pts.] Find the range, standard deviation, variance, and coefficient of variation for the data set in Problem 1, assuming it's a sample taken from a population.

3. [10 pts. each] Using the data set in Problem 1, do the following.
   (a) Find the quartiles Q_1, Q_2, and Q_3.
   (b) Construct a box-and-whisker plot.

4. [10 pts.] What is the percentile of the value 20 in the data set in Problem 1? What is the percentile of 29?

5. [10 pts.] In an astronomy course the final grade is broken down as follows:
   - 24% = Midterm Exam
   - 20% = Term Paper: Why Horoscopes Are Utter Nonsense
   - 18% = Asteroid Hunting
   - 12% = Name That Constellation
   - 14% = Setting Up a Telescope Without Wrecking it
   - 10% = The Hardy-Weinberg Algorithm for Counting Shooting Stars Without Having to Take Off Your Shoes
   - 2% = Exhibiting an Ability to Fog a Mirror

   If Pavel got a 63% on the midterm, 89% on the term paper, 81% on the asteroid hunt, 100% on naming constellations, 53% on setting up a telescope, 39% on counting shooting stars, and 50% on fogging a mirror, what is Pavel's weighted mean for the course?

6. [10 pts.] Two cards are selected at random from a standard deck of 52 playing cards. The first card is replaced before the second card is selected. Find the probability of selecting a club and then selecting a face card.

7. [5 pts. each] The table below shows the estimated number of earned degrees (in thousands) conferred in 2000 by level and gender. Say someone who earned a degree in 2000 is randomly selected. Find the probability of getting someone who...

   (a) Earned a master's degree in 2000.

   (b) Earned a doctor's degree or a bachelor's degree in 2000.

   (c) Earned a bachelor's degree in 2000 given the person is a woman.

   (d) Is a woman given the person earned an associate's degree in 2000.

		GENDER		
		Men	Women	**Total**
LEVEL	Associate	208	323	**531**
	Bachelor	502	659	**1161**
	Master	187	227	**414**
	Doctor	27	19	**46**
	Total	**924**	**1228**	**2152**

8. [10 pts.] Of the boxes produced by a company, 7% have a puncture, 4% have a smashed corner, and 0.5% have both a puncture and a smashed corner. Find the probability that a randomly selected box has a puncture or has a smashed corner.

9. [10 pts.] A physics club has 18 members. How many different ways can the club select a president, vice president, treasurer, secretary, and court jester?

10. [10 pts.] A laptop has 3 choices for a processor, 2 choices for a graphics card, 6 choices for memory, 5 choices for a hard drive, and 9 choices for keyboard color. How many ways can the laptop be customized?

11. [10 pts.] In how many distinct ways can the letters in the Spanish word *LANZALLAMAS* be arranged?