

PROB STAT HONORS

Name _____

UNIT 1 REVIEW

1. The Cleveland Casting Plant is a large, highly automated producer of gray and nodular iron automotive castings for Ford Motor Company. The company is interested in keeping the pouring temperature of the molten iron (in degrees Fahrenheit) close to the specified value of 2550 degrees. A Quality Control Manager measured the pouring temperature for 10 randomly selected crankshafts. **In this scenario, what is the population and what is the sample?**

2. Medical researchers at a large city hospital investigating the impact of prenatal care on newborn health collected data from 882 births during 1998–2000. They kept track of the mother’s age, the number of weeks the pregnancy lasted, the type of birth (cesarean, induced, natural), the level of prenatal care the mother had (none, minimal, adequate), the birth weight and sex of the baby, and whether the baby exhibited health problems (none, minor, major). **Identify the variables being measured in this study, and classify each as either qualitative or quantitative.**

3. Which of the following are continuous variables, and which are discrete?

- (a) Speed of an airplane
- (b) Age of a college professor chosen at random
- (c) Number of books in the college bookstore
- (d) Weight of a football player chosen at random
- (e) Number of lightning strikes in Rocky Mountain National Park on a given day

Just how accurate are the weather forecasts we hear every day? The following table compares the daily forecast with a city’s actual weather for a year:

		Actual Weather	
		Rain	No rain
Forecast	Rain	27	63
	No rain	7	268

Use this information to answer questions 4 – 7.

- 4. In what percentage of days was the forecast correct?
- 5. When rain was predicted, in what percentage of days did it actually rain?
- 6. Do these data support the statement “It usually doesn’t rain when there is a forecast for rain?”
- 7. Construct a bar chart to compare the variables presented in this chart.

8. 215 children in the U.S. were asked which superpower they would like to have. 45 said “Fly,” 44 said “Freeze Time,” 37 said “Invisibility,” 23 said “Super Strength,” and 66 said “Telepathy.” **Construct a Pie Chart of these data.**

130	190	140	80	100	120	220	220	110	100
210	130	100	90	210	120	200	120	180	120
190	210	120	200	130	180	260	270	100	160

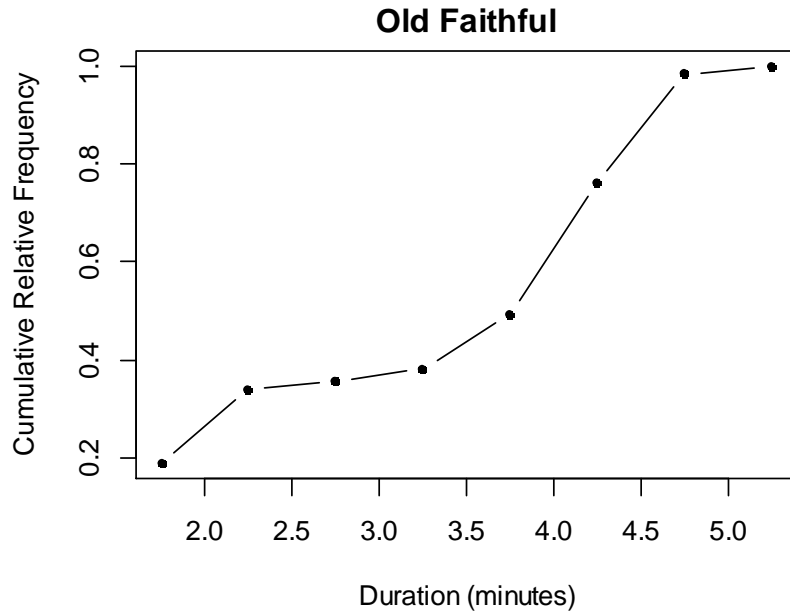
9. The number of calories per serving for a sample of ready-to-eat cereals is listed above. **Construct a frequency histogram of these data.**

100	130	130	130	110	110	120	130	140	100
140	170	160	130	160	120	150	100	145	145
145	115	120	100	120	160	140	120	180	100

10. A listing of calories per one ounce for a sample of salad dressings (not fat-free) is given above. **Construct a frequency polygon for these data.**

90	83	80	73	70	51	68	79	70	71
72	74	67	54	81	66	62	63	68	57
66	96	78	55	60	66	57	71	60	85
76	98	77	88	78	81	64	66	77	70

11. The ages of the first 40 Vice Presidents of the United States at the time of their death are listed above. **Construct a cumulative frequency polygon for these data.**



12. “Old Faithful” is a cone geyser located in Wyoming. It was discovered in 1870, and it erupts very regularly. The lengths of the eruptions have been measured, and a cumulative frequency polygon of 272 of those measurements is given above. **Based on this graph, approximately half of all eruptions have what durations?**

67	62	38	73	34	43	72	35
53	55	58	63	47	42	51	62
32	29	47	62	29	38	36	41

13. The number of visitors to the Railroad Museum during 24 randomly selected hours is shown above. **Construct a stemplot of these data.**

79	80	80	80	74	80	80	79	64	78
73	78	74	45	81	48	80	82	82	70

14. During his 20 seasons in the NHL, Wayne Gretzky scored 50% more points than anyone who ever played professional hockey. He accomplished this amazing feat while playing in 280 fewer games than Gordie Howe, the previous record holder. Shown above are the number of games Gretzky played during each season. **Construct a dotplot of these data.**