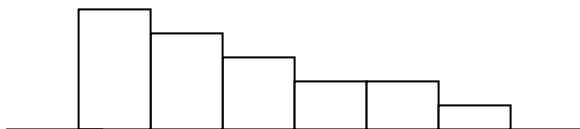


**AP STATISTICS**  
(Chapters 1-8)

1. Describe the distribution of ages in a city:



2. Graph a box plot on your calculator for the following test scores:  
{90, 80, 96, 54, 80, 95, 100, 75, 87, 62, 65, 85, 92, 87, 74, 89}
3. Draw a stem and leaf plot for the data in problem 3.
4. If the test scores from problem 3 come from a normal distribution with  $\mu = 80$ ,  $\sigma = 5$  then
- calculate the z-score for a score of 90
  - use your calculator to find the percent of scores below 92
  - use your calculator to find the percent of scores greater than 87
  - what score would be at the 90th percentile?
5. Jeff made a 90 on his Algebra I test. The class average is 83 and the standard deviation is 5. Mary made a 95 on her test in another class. Her class average is 85 and the standard deviation is 8. Who did better relative to his/her peers?
6. Calculate  $r^2$ ,  $r$  and the equation for the LSRL for:  
Quiz average X = {90, 82, 97, 90, 85, 73, 98, 45, 79, 86}  
Quiz Average Y = {87, 80, 95, 70, 88, 72, 95, 52, 80, 82}
7. Is there a linear relationship in the data from problem 6?
8. Given  $r = .9867$ ,  $r^2 = .9736$  and  $y = .035 + .72x$ , what percent of the change in  $y$  is caused by  $x$ ?
9. If a residual plot reveals that a linear regression is not appropriate for 2 variables, what is the next step in finding the prediction equation?
10. Using the data in the table below, find the distribution of grades for those enrolled in the program.

Grade	Enrolled In Program?	
	Yes	No
A or B	12	5
C or D	9	8
F	4	12

11. Design an experiment for testing a new drug on a sample of 60 subjects.
12. Design a simulation that would replicate the probabilities for selecting a person based on ethnicity in the US if 60% are white, 20% black and 20% other.
13. What is probability?
14. Let random variable  $X$  = number of composite numbers (4 or 6) when rolling 3 dice.

The probability distribution is below. Calculate the mean.

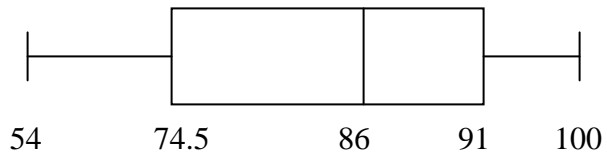
$X$	0	1	2	3
$P(X)$	.037	.444	.222	.296

15. Using the probability model above,
  - a. calculate  $P(X \leq 1)$
  - b. determine the complement for  $X = 3$
16. Given a bag of M&Ms {3Br, 2R, 2Y, 1O, 1Bl, 1Gr}, let  $X$  = number of brown M&Ms chosen. If you choose 3 M&Ms at random, with replacement, find  $P(X = 1)$ .

## ANSWERS

1. Skewed right

2.



3. 

10	0
9	0256
8	005779
7	45
6	25
5	4

4. a.  $z = 2$

b.  $\text{normalcdf}(0, 92, 80, 5) = .992$  or 99.2%

c.  $\text{normalcdf}(87, 1000, 80, 5) = .0807$  or 8.07%

d.  $\text{invNorm}(.90, 80, 5) = 86.4$

5. Jeff did better because he was more standard deviations above his peers than Mary was in relation to her peers.

6.  $r^2 = .79$ ,  $r = .89$ ,  $y = 17.73 + .76x$

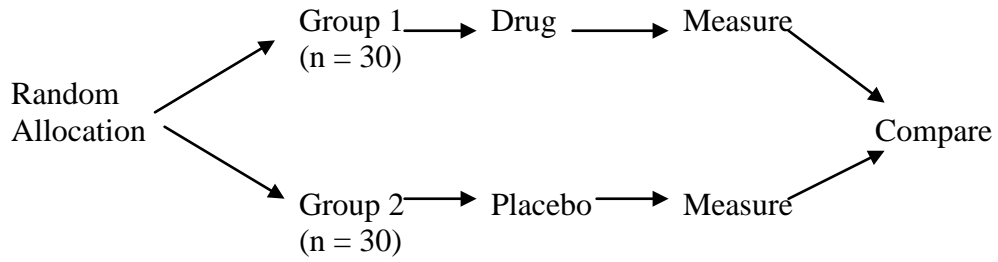
7. Yes...  $r = .89$  and there is no pattern in the residual plot

8. 97.36% ( $r^2$  value)

9. Calculate  $\log y$  and test for exponential regression

10. 48% A  
36% B  
16% C

11.



12. Answers will vary: Use random numbers where white = 0-5, black = 6, 7 and other = 8, 9

13. The proportion of times an outcome occurs **in the long-run**

14. Mean (weighted average) = 1.776

15. a. .481

b.  $X < 3$

16.  $\frac{3}{10} \cdot \frac{7}{10} \cdot \frac{7}{10} \cdot 3$  ways of choosing 1 brown M&M