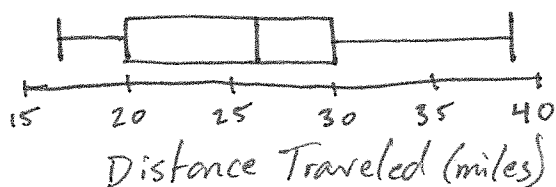


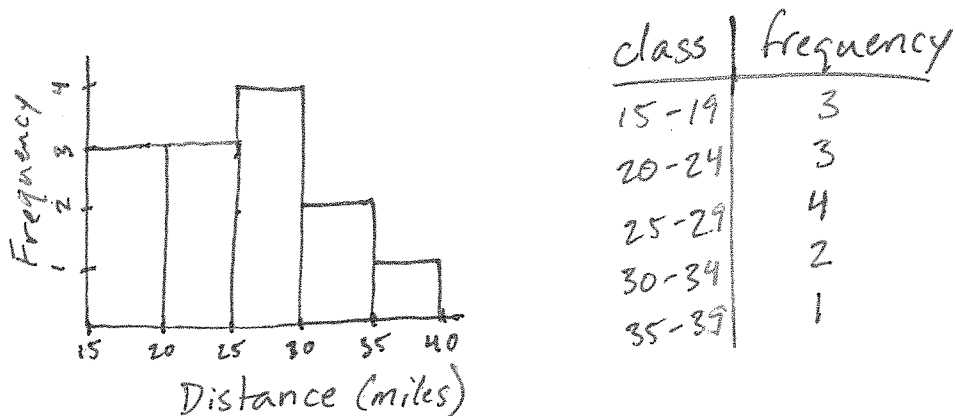
1. Two sales representatives of a company travel regularly to meet their clients. Each value represents the distance, in miles, that the representatives had to travel on a randomly selected day of the week.

Sales Rep #1: 27 29 19 33 29 21 18 17 22 38 31 22 27
 Sales Rep #2: 45 49 51 47 38 50 40 32 12 6 44 50 56

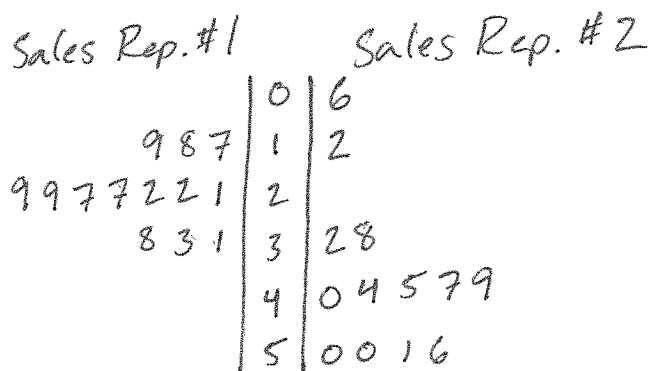
a) Make a box plot of the data for Sales Rep #1.



b) Make a histogram of the data for Sales Rep #1.



c) Make a back-to-back stem-and-leaf plot of the two Sales Reps.



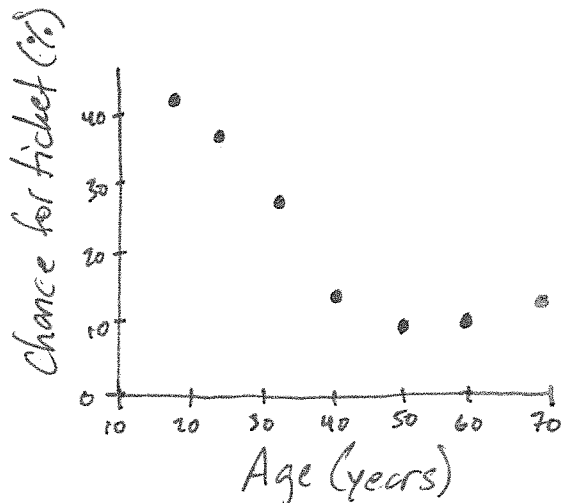
d) Use your answer from part (c) to compare this data in a few sentences.

The center for Sales Rep #1 is larger than that of Sales Rep #2 (≈ 40 miles vs. ≈ 27 miles).
 Sales Rep #1 has much more symmetric data while Sales Rep #2's data is skewed left.
 Sales Rep #2 has much greater spread.

2. Here is some data comparing the age of a person and the percent chance of getting a speeding ticket at that age:

(16, 42) (23, 36) (33, 26) (40, 15) (51, 11) (60, 11) (71, 13)

a) Make a scatterplot for this data.



b) Find the equation of the line of regression.

$$y = -0.58x + 46.23$$

c) Find the correlation coefficient, r for this data. Then use it to decide if there is a significant positive linear relationship, a significant negative linear relationship, or no significant linear relationship.

$r = -0.89$ There is a very significant negative linear relationship between age and chance of getting a speeding ticket.

3. Which of the following is an accurate definition of the *standard deviation*?

- a) how spread out your data is
- b) the total deviations of your data points
- c) S_x after finding 1-var stats on the graphing calculator
- d) the distance every data point is from the mean
- e) the average distance your data points are away from the mean

4. Which of the following accurately describes the 3rd quartile?

- a) 3 quarters of your data is above this number
- b) a quarter of your data is below this number
- c) 25% of the data is less than or equal to that number
- d) 75% of your data is less than or equal to that number
- e) none of the above

Review!

5. Solve for x.

a. $\frac{5\sqrt{2x}}{4} = 10$

$$\sqrt{2x} = 8$$

$$2x = 64$$

$$x = 32$$

b. $\sqrt{4x-8} + 6 = 0$

$$\sqrt{4x-8} = -6$$

No solution

c. $\sqrt{3x-2} = x$

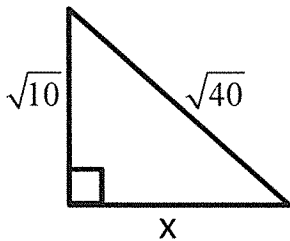
$$3x-2 = x^2$$

$$x^2 - 3x + 2 = 0$$

$$(x-2)(x-1) = 0$$

$$x = 2, 1$$

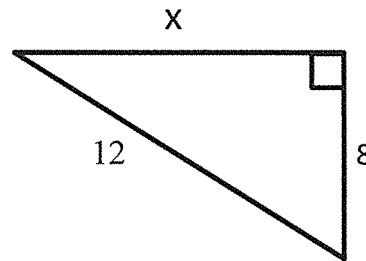
6. Solve for the missing side. Do not use decimals!



$$x^2 + (\sqrt{10})^2 = (\sqrt{40})^2$$

$$x^2 + 10 = 40$$

$$x^2 = 30 \rightarrow x = \sqrt{30}$$



$$x^2 + 8^2 = 12^2$$

$$x^2 + 64 = 144$$

$$x^2 = 80$$

$$x = \sqrt{80}$$

$$x = 4\sqrt{5}$$

7. Find the vertex of $y = x^2 - 6x + 4$ by completing the square.

$$y = x^2 - 6x + 4 + 9 - 9 \quad (\text{half of } -6 \text{ squared})$$

$$y = (x-3)^2 - 5$$

$$\text{vertex} = (3, -5)$$

8. A diver's height is modeled by the equation $h(t) = -16t^2 + 16t + 32$, where $h(t)$ is the height in feet, and t is the time in seconds. Find the time it takes for the diver to hit the water.

This means when height = 0

$$0 = -16t^2 + 16t + 32$$

$$0 = -16(t^2 - t - 2)$$

$$0 = (t-2)(t+1)$$

$$t = 2, -1$$

$$2 \text{ seconds}$$