

Key.

**Quiz 1**  
**Statistics for Business (22S:008, Bognar)**

August 30, 2006

1. (10 pts) A researcher determined the weight (in pounds) of 7 first-grade children. The data is listed below.

40, 52, 41, 46, 48, 56, 64

- (a) (3 pts) Compute the interquartile range (IQR).

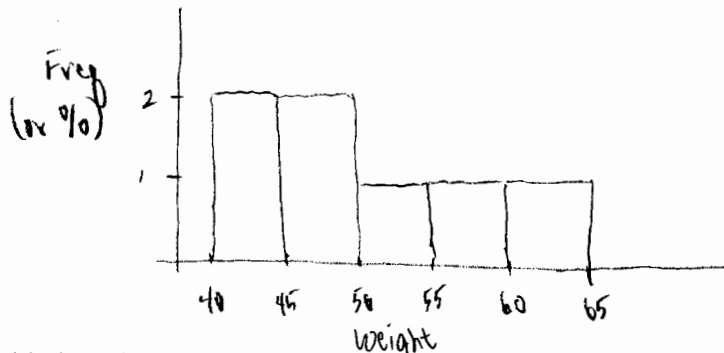
40 41 46 48 52 56 64  
 \* \* \* \* \*

$$Q_3 = 56$$

$$Q_1 = 41$$

$$IQR = Q_3 - Q_1 = 56 - 41 = 15$$

- (b) (4 pts) Use the above dataset to draw a histogram with 5 bins. Hint: make each bin 5 units wide. Be sure to properly label each axis your graph.



- (c) (3 pts) Describe the *shape* of the distribution.

Skewed to the right.

2. (10 pts) The amount of time spent watching TV (per week) for 3 children was

10, 16, 7

Compute the standard deviation  $s$ . You must first display the mathematical equation for  $s$  (as shown in class), then you can plug-in the appropriate quantities and derive the answer. Show all of your work using good mathematical notation.

$$n = 3$$

$$\bar{x} = \frac{x_1 + \dots + x_n}{n} = \frac{10 + 16 + 7}{3} = \frac{33}{3} = 11$$

$$s = \sqrt{\frac{(x_1 - \bar{x})^2 + \dots + (x_n - \bar{x})^2}{n-1}} = \sqrt{\frac{(10-11)^2 + (16-11)^2 + (7-11)^2}{3-1}} = \sqrt{\frac{(-1)^2 + (5)^2 + (-4)^2}{2}} = \sqrt{\frac{1+25+16}{2}} = \sqrt{\frac{42}{2}} = \sqrt{21} = 4.583$$