Statistics Unit 1 worksheet: Quartiles and the five number summary

Name _____ Date _____ Period _____

1. Find Q_1, the median and Q_3 of each list. Sort the values first, and leave the median out of both halves when the count is odd.

(a) 14, 6, 11, 20, 9, 17, 3

(b) 21, 15, 30, 12, 26, 18, 35, 24, 10, 28

(c) 8, 15, 4, 12, 9, 20, 6, 11, 17, 7, 14, 10, 23

(d) 40, 52, 47, 38, 61, 55, 44, 49, 58, 42, 50, 36, 63, 46, 53, 57

2. Mason's gym class did jumping jacks for one minute, then each of the 14 students took a pulse. The heart rates, in beats per minute, were

112, 98, 125, 104, 131, 117, 95, 120, 108, 140, 101, 114, 122, 110.

(a) Find the five-number summary.

(b) Find the range and the IQR.

(c) How many of the 14 heart rates are below Q_1?

3. Layla timed how long each of the 20 students in her class waited in the lunch line on Monday. All 20 times are different. The five-number summary is 2, 5, 8, 12, 25 minutes.

(a) How many students waited less than 5 minutes?

(b) How many waited between 5 and 12 minutes?

(c) What fraction of the class waited more than 8 minutes?

(d) Find the range and the IQR.

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4. The 10 members of Zoe's club did these numbers of hours of volunteer work this month:

5, 3, 8, 2, 47, 4, 6, 3, 7, 5.

Zoe says, "Q_1 is a quarter of the way from the minimum to the maximum, so I add a quarter of the range to the minimum."

(a) What number does Zoe's method give for Q_1?

(b) Find the real Q_1 and Q_3.

(c) How many of the 10 values are below Zoe's number? Explain what is wrong with her method.

5. Ryan asked 21 students how many pairs of shoes they own.

Pairs of shoes	**2**	**3**	**4**	**5**	**6**	**7**
Students	3	5	6	3	2	2

(a) Find the five-number summary.

(b) How many students own more than Q_1 pairs and fewer than Q_3 pairs? Explain why this is far from half of the 21 students.

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