# Statistics Unit 1 quiz 2: Quartiles and the five number summary, Computing a standard deviation, sample and population, Interpreting a standard deviation

Name _____ Date _____ Period _____

7 questions, 21 points

**1.** Nine students in Hiro's class did a wall sit, back flat against the wall and knees bent, and timed how long each one held it, in seconds: 38, 52, 26, 65, 45, 41, 60, 30, 49. Find $Q_1$, the median and $Q_3$. (2 points)

**2.** Isabel, Jin and Arjun each counted how many lines they wrote in a journal on eight days.

Isabel: 24, 10, 18, 32, 12, 26, 16, 20

Jin: 20, 32, 14, 27, 10, 18, 25, 15

Arjun: 10, 16, 12, 22, 16, 20, 30, 32

Exactly one of the three lists has the five-number summary 10, 14, 19, 25, 32. Which one? For each of the other two lists, find its five-number summary and name the numbers in it that differ. (3 points)

**3.** Jin timed how many minutes each of 11 classmates took to finish a logic puzzle. Sorted, the times are

3, 5, 6, 8, 9, 12, 14, 15, 18, 20, 23.

Jin kept the median in both halves and got $Q_1 = 7$ and $Q_3 = 16.5$. (3 points)

(a) Find $Q_1$ and $Q_3$ by this lesson's rule.

(b) Find the IQR by Jin's way and by this lesson's rule. How much larger is the lesson's IQR?

**4.** A class has 30 students. To estimate the spread of the class's reaction times, Mateo tests 5 students chosen at random. Their times are 180, 210, 250, 260 and 300 milliseconds. (3 points)

(a) Should Mateo use $\sigma$ (divide by $N$) or $s$ (divide by $n - 1$)? Say why.

(b) Find that standard deviation, to two decimal places.

**5.** A bakery's croissants have a mean weight of 62 g and a standard deviation of 3 g. (3 points)

(a) Write one sentence interpreting the 3 g.

(b) One croissant weighs 53 g. How many standard deviations from the mean is it, and on which side?

(c) The bakery sells only croissants within 2 standard deviations of the mean. Give the range of weights it sells, and say whether a 67 g croissant is sold.


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**6.** A farm packs 2600 eggs a day. Isaac weighs 4 of them, chosen at random, to estimate the spread of the masses of all the day's eggs. Three of the masses are 55, 61, 63 grams. The fourth was smudged, but the mean of the four is 62 grams. Find the fourth mass, and the right standard deviation to two decimal places. (3 points)

**7.** A school cafeteria has two lunch lines. A student timed the wait in each line, in minutes, on five days. Treat each line's five days as a population. (4 points)

| | **Mon** | **Tue** | **Wed** | **Thu** | **Fri** |
|---|---|---|---|---|---|
| Hot line | 3 | 5 | 4 | 7 | 6 |
| Salad line | 0 | 12 | 1 | 10 | 2 |

(a) Find the mean and standard deviation of each line's waits, to two decimal places.

(b) Compare the two lines in context.

(c) Elena must be through the line within 8 minutes to get to a club meeting. Which line should she choose? Use the standard deviations in your answer.


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