Statistics Unit 1 quiz 1: Types of data: categorical, numerical, discrete, continuous, Making a histogram and choosing the bin width, Describing a distribution

Name _____ Date _____ Period _____

7 questions, 21 points

1. Jin sorts the variables his gymnastics club records for each member: (3 points)

(a) level (bronze, silver or gold): numerical, because the levels come in an order;

(b) membership number: numerical and discrete, because it is a whole number;

(c) number of classes attended this month: numerical and discrete;

(d) height, recorded to the nearest centimeter: numerical and discrete, because every recorded value is a whole number;

(e) longest time holding a handstand, in seconds: numerical and continuous.

Find each of Jin's mistakes. For each one, give the right type and the reason.

2. Five houses on Elm Road are numbered 3, 7, 11, 15 and 19. They have 4, 2, 5, 3 and 6 people living in them, in that order. (3 points)

(a) Find the mean house number and the mean number of people per house.

(b) The town renumbers the same five houses 2, 4, 6, 8 and 10. Nobody moves. Find both means again.

(c) Use your answers to explain which mean describes the houses.

3. A lumber yard records the length of each board to the nearest centimeter. Board A is recorded as 87 cm. (3 points)

(a) What could the true length of board A be?

(b) Board B is also recorded as 87 cm. Could the true lengths of boards A and B differ by 0.8 cm? Could they differ by 1.2 cm? Explain.

(c) Board C is recorded as 88 cm. Is board C surely longer than board A? Explain.

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4. For (a) and (b), say which center and spread a description should give, and why. (3 points)

(a) The amounts of juice in 18 juice boxes from one carton are roughly symmetric, with a mean of 201 mL, a median of 200.5 mL and no outliers.

(b) The money 15 kids earned pet-sitting last month has a mean of 64 dollars and a median of 40 dollars.

(c) The same 15 kids put all their pet-sitting money together for a class trip. How much do they have? Say which center you used, and why the other could not give it.

5. Jack asked 13 classmates on how many of the 14 days of spring break they read for at least 20 minutes: 14, 14, 13, 14, 12, 13, 11, 14, 6, 13, 10, 12, 14. Maya wrote:

"The 13 students read on 6 to 14 days. The data is skewed right, because most of the values are at the high end. The median is 13 days and the IQR is 2.5 days. There are no outliers." (3 points)

(a) Check Maya's median and IQR.

(b) Which of her claims are wrong? Explain each.

(c) Write an improved description.

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6. Maya measured how far each of the 30 students in her gym class threw a softball, in meters. She kept only this frequency table, made the lesson's way (first edge the largest multiple of 5 at or below the shortest throw, a value on an edge going in the bar to its right):

Distance (m)	Count
10 to 15	2
15 to 20	3
20 to 25	6
25 to 30	7
30 to 35	5
35 to 40	4
40 to 45	2
45 to 50	1

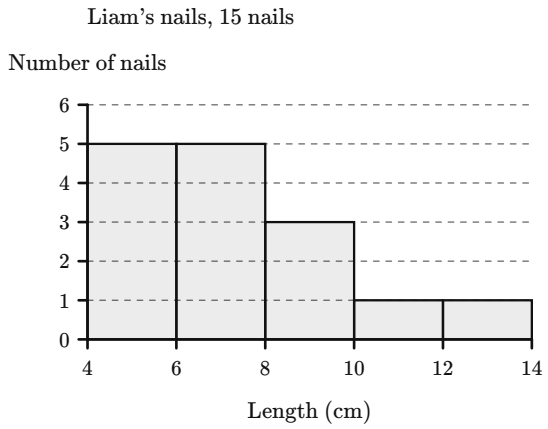
(a) Make the frequency table for bins 10 m wide starting at 10. (b) Omar wants bins 10 m wide starting at 5 instead. Can he get the counts from Maya's table alone? If so, give them; if not, explain. (c) Can anyone make a table with bins 2 m wide from Maya's table alone? Explain. (3 points)

7. Liam measured the 15 nails in a jar in his grandfather's workshop, in centimeters:

4.5, 6.0, 7.2, 5.8, 8.0, 9.4, 6.6, 10.1, 7.9, 8.5, 6.0, 12.3, 9.0, 7.5, 5.1

He drew the histogram below with bins 2 cm wide from 4 cm. In this course a value on an edge goes in the bar to its right.

(a) Which bars are the wrong height, and what mistake did Liam make? (b) Give the correct height of every bar. (3 points)



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