Math 108-01
Summer 2024
Dr. Lily Yen

Quiz 2

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Name: _____
Number: _____
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Score: ___/10

Problem 1: Use a permissible graphing calculator (TI83, TI83+, TI84-Plus) to evaluate the following. Round your answers to 6 decimal places.

a. $\dfrac{123.9 - 3.2^4}{\sqrt{3.17} - 11.8} \approx$ $\boxed{-1.900\,524}$

b. $\left(\dfrac{11}{3}\right)^{1.14} - 21.4 \times \left(\dfrac{10}{11}\right)^{-1.32} \approx$ $\boxed{-19.870\,869}$

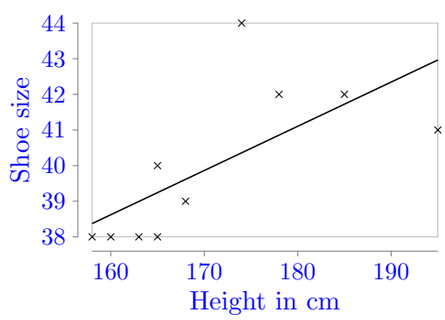
Score: /2

Problem 2: Shown is a sample of 10 females from a data set from kaggle.com showing height, weight, shoes size and gender of people.

Height (cm):	158	165	178	165	160	174	163	168	185	195
Shoe size (European):	38	38	42	40	38	44	38	39	42	41

Use the given data to answer the following questions:

a. Draw a scatter plot. Provide dimensions of the window and label your axes.



Score: /2

b. Use linear regression to find a model to fit your plot. Report your model to six decimal places.

$$y = 0.124\,120x + 18.762\,985$$

Score: /2

c. According to your model, what is the shoe size accurate rounded to a whole number of a student with a height of 185 cm? Comment on the reliability of your answer.

If $x = 185$, then $y \approx 41.7253$, so size 42.
Interpolation is valid, but in this case the data is very scattered.

Score: /1

d. According to your model, what is the predicted height for a student with a shoe size of 35? Comment on the reliability of your answer.

Solving $35 = 0.124\,120x + 18.7630$ yields that $x \approx 100$ cm.
Extrapolation is always dubious.

Score: /2

e. Comment on the reliability of your linear regression model relative to the scatter plot.

This data is too scattered to reliably make a model.

Score: /1