

Name: _____
MATH 107
Winter 2022
HW 17: Due 01/19

*"I found out that smoking is the leading
cause of statistics."*
—Matthew Gray Gubler

Problem 1. (10pt) Consider the following dataset:

9	−8	13	−1	0	1	23	2	5	10	20
−10	4	9	12	3	8	15	10	−1	6	17

- (a) Find the 5-number summary for this dataset.
- (b) Find the IQR for this dataset.
- (c) Sketch a box plot of this dataset.

Problem 2. (10pt) Consider the following dataset:

$-2 \quad 0 \quad 1 \quad 1 \quad 5 \quad 8$

- (a) Find the mean for this dataset.
- (b) Find the standard deviation for this dataset.

Problem 3. (10pt) Consider the probability space whose events, X , and probabilities, $P(X)$, are given below:

X	1	2	3	4
$P(X)$	$\frac{2}{10}$	$\frac{1}{10}$	$\frac{4}{10}$?

- (a) Find $P(4)$.
- (b) Find the expected value of X .

Problem 4. (10pt) There is an approximately 1 in 300 million chance of winning the lottery. Suppose that the average jackpot amount for the lottery is 800 million. After taking the lump sum, the 'take home' amount for an 800 million jackpot prize is about 500 million. A lottery ticket costs \$2.

- (a) Compute the expected value for the lottery.
- (b) Based on (a), should you play the lotto?

Problem 5. (10pt) Watch Zach Star's "[This is How Easy It is to Lie with Statistics](#)" on YouTube. Being as detailed as possible, comment on what you learned and how it relates to the course material.