

# MATH 362—Work Sheet 09

Dr. Justin M. Curry

Due on Saturday, March 13th, 2021

Name: \_\_\_\_\_

1. (3 points) Fill out this table as completely as possible.

Our Three First Summary Statistics and Their Properties				
	Definition	Synonyms	Symbols	Uniqueness
Mean				
Median				
Mode				

2. (6 points) The top ten scores on Midterm 1, which was out of 40 points, are as follows

36, 36, 38, 38, 38, 39, 39, 39, 40, 40

- (a) (2 points) What's the mean of this distribution? is it unique?

- (b) (2 points) What's the median of this distribution? Is it unique?

- (c) (2 points) What's the mode of this distribution? Is it unique?

3. (2 points) Rewrite the above list of scores as the probability mass function of an empirical random variable  $X$

$$\begin{array}{c|c} k & \\ \hline P(X = k) & \end{array}$$

Compute the mean of the top ten scores by computing the expectation of the random variable  $X$ .

4. (7 points) For each of the 7 dice depicted below, compute the expected value of rolling each die.



- (a) (1 point) The four-sided, or tetrahedral, die  $D4$ :
- (b) (1 point) The six-sided, or hexahedral, die,  $D6$ :
- (c) (1 point) The eight-sided, or octahedral, die,  $D8$ :

(d) (1 point) The ten-sided die with faces labelled  $\{0, \dots, 9\}$ :

(e) (1 point) The ten-sided die with faces labelled  $\{0, \dots, 90\}$ :

(f) (1 point) The twelve-sided die, or dodecahedral, die,  $D_{12}$ :

(g) (1 point) The twenty-sided die, or icosahedral, die,  $D_{20}$ :