Math 153 - Quiz 6

March 23, 2017

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary. YOU MUST WORK INDIVIDUALLY.

1. (5 points) Consider the following probability distribution

x	0	1	2	3	4	5	6	7
$P(x)$	0.012	0.026	0.020	0.001	0.472	0.002	0.324	0.143

(a) State the two conditions that verify that this table indeed defines a probability distribution.

- EACH $P(x)$ IS A PROBABILITY : $0 \le P(x) \le 1$
- $\sum P(x) = 1$

(b) Compute $P(x \ge 4)$.

$0.472 + 0.002 + 0.324 + 0.143 = 0.941$

(c) Determine all unusually small values of x.

USING CUMULATIVE 5% RULE

$X = 0$ & $X = 1$

(d) Determine any unusually large values of x.

NONE

IF you use μ & σ,
$\mu = 4.912$
$\sigma = 1.503$

2. (5 points) A jar contains 5 pennies, 3 nickels, 7 dimes, and 1 quarter. A coin is selected at random. Let x represent the value of the coin in cents. Determine the probability distribution for x and computed the expected value.

X	P(x)
1	5/16
5	3/16
10	7/16
25	1/16

$\mu = (1)\left(\frac{5}{16}\right) + 5\left(\frac{3}{16}\right) + 10\left(\frac{7}{16}\right) + 25\left(\frac{1}{16}\right)$

$= \frac{5+15+70+25}{16} = \frac{115}{16} =$

7.1875 ¢