

Introduction to Statistics

Chapter 3 & 4 Test

100pts

Print Name: **Solutions**

Please print clearly! Use a pencil.

A person who earned a degree in the year 2004 is randomly selected and listed in the table below. Find the probability of selecting someone who: Round to the nearest tenths.

		Gender		
		Male	Female	Total
Level Of Degree	Associate	275	431	706
	Bachelor's	601	788	1389
	Master's	231	429	660
	Doctorate	23	28	51
	Total	1130	1676	2806

a) earned a Master's degree. $\frac{660}{2806} \approx 0.235 \approx 0.2$ 5pts

b) earned a master's degree given that the person is a female. $\frac{429}{1676} \approx 0.255 \approx 0.3$ 5pts

c) earned a bachelor's degree given that the person is not male. $\frac{788}{1676} \approx 0.47 \approx 0.5$ 5pts

d) earned an associate degree or a bachelor's degree. $\frac{706}{2806} + \frac{1389}{2806} \approx 0.746 \approx 0.7$ 5pts

e) earned a doctorate given that the person is a female. $\frac{28}{1676} \approx 0.016 \approx 0.0 \text{ or } 0.1$ 5pts

f) earned a associate's degree or is a female. $\frac{706}{2806} + \frac{1676}{2806} - \frac{431}{2806} = \frac{1051}{2806} \approx 0.69 \approx 0.7$ 5pts

g) is a female given that the person earned a master's degree. $\frac{429}{660} = 0.65 \approx 0.7$ 5pts

The table lists the number of hits per game by a baseball player during a recent season. (pg 232 #

12) Round to the nearest thousands.

Hits	Games
0	29
1	62
2	33
3	12
4	3
5	1

- a) Construct a probability distribution of the data in the table below. Please show work for $P(x)$. (1pts each) 12pts

x	f	P(x)
0	29	0.207
1	62	0.443
2	33	0.236
3	12	0.086
4	3	0.021
5	1	0.007
$n=140$		$\sum P(x) \approx 1$

L1	L2	L3	Z
0	29		
1	62		
2	33		
3	12		
4	3		
5	1		
L2(7) =			

1-Var Stats	
\bar{x}	= 1.292857143
$\sum x$	= 181
$\sum x^2$	= 375
Sx	= 1.007143039
σx	= 1.003539654
n	= 140

- b) Find the mean showing formula: 3pts

$$\mu = \sum x \cdot P(x) \approx 1.2928 \quad \text{This is } \bar{x} \text{ on the calculator}$$

- c) Find the variance showing formula: 3pts

$$\sigma^2 = \sum (x - \mu)^2 \cdot P(x) \approx (1.0035)^2 \approx 1.007 \quad \text{I will also give credit for } (1.004)^2 \approx 1.008$$

- d) Find the standard deviation showing formula: 3pts

$$\sigma = \sqrt{\sigma^2} \approx 1.0035 \approx 1.004 \quad \text{This is } \sigma_x \text{ on the calculator, which is 1.0035}$$

- e) Find the probability that a game selected at random for further study has at least 3 hits. 5pts

$$P(x \geq 3) = P(x = 3) + P(x = 4) + P(x = 5) = 0.086 + 0.021 + 0.007 = 0.114$$

