

Honors Statistics 4.2 and 4.3 Review

Are the following probability distributions valid? Explain.

1.

X	0	1	2	3
P(X)	.33	.17	.49	.02

2.

X	0	1	2	3
P(X)	2/9	1/9	3/9	1/3

For #3-6

A) Make a probability distribution and identify the random variable.

B) Find the mean (expected value) and standard deviation.

- A casino game involves rolling two dice. If you bet \$5 and the sum of the two dice is 6 or 8, you win \$5. If you roll a 4 or 12, you win \$10. If you roll anything else, you win nothing.
- 2000 raffle tickets are sold. Susan buys one raffle ticket for \$10. The prize is \$3000.
- Joe buys a \$20,000 life insurance policy for \$80. Joe is 21 years old so the probability that a 21 year old male lives in any given year is 0.9961.
- An insurance company sells a \$5,000 life insurance policy to 30-year old males. The policy costs \$50. The probability that 30-year old males live in any given year is 0.9942

Construct a binomial distribution chart and then a binomial distribution histogram.

- 1 out of 8 seniors at Rydell High School are taking calculus. You randomly select 3 students and ask if they are taking calculus.
- 36% of women consider themselves basketball fans. You randomly select 4 women and ask if she considers herself a basketball fan.

In San Diego, 44% of the days in a year are clear. If you randomly select 6 days, find the probability that:

- exactly four days are clear
- exactly two days are clear
- less than 2 days are clear
- at least 4 days are clear
- at most 2 days are clear
- at least one day is clear

One in four adults says he or she has no trouble sleeping at night. If you randomly select 8 adults, find the probability that:

- exactly two adults have no trouble sleeping
- none of the adults have no trouble sleeping
- 2 or 3 of the adults have no trouble sleeping
- more than 5 adults have no trouble sleeping

Answers Ch 4 Quiz review

1. No
2. Yes
- 3.

X=Money won	0	5	-5
P(X)	10/36	4/36	22/36

Mean = -2.5
St dev = 3.4

- 4.

X = Money won	-10	2990
P(X)	1999/2000	1/2000

Mean = -\$8.5
St dev = 67.1

- 5.

X = money Joe receives	-80	19920
P(X)	.9961	.0039

Mean = -\$2
St dev = 1246.6

- 6.

X = profit for company	50	-4950
P(X)	.9942	.0058

Mean = \$21
St dev = \$379.7

- 7.

X = # students taking calc.	0	1	2	3
P(X)	.670	.287	.0410	.00195

- 8.

X= # women who like basketball	0	1	2	3	4
P(X)	.168	.377	.319	.119	.0168

9. .176
10. .286
11. .176
12. .239
13. .462
14. .969
15. .311
16. .100
17. .519
18. .00423