

Name \_\_\_\_\_

**MULTIPLE CHOICE.** Choose the one alternative that best completes the statement or answers the question.

Find the mean of the given probability distribution.

1)

x	P(x)
0	0.19
1	0.37
2	0.16
3	0.26
4	0.02

x      P(x)  
L<sub>1</sub>    L<sub>2</sub>

1) C

A) 1.74

B) 1.45

C) 1.55

D) 1.64

Solve the problem.

2) In a game, you have a  $\frac{1}{42}$  probability of winning \$67 and a  $\frac{41}{42}$  probability of losing \$7. What is your expected value? 2) D

A) \$8.43

B) -\$6.83

C) \$1.60

D) -\$5.24

$$E(x) = \sum (x P(x)) = \frac{1}{42} \cdot 67 + \left(\frac{41}{42}\right)(-7) = -5.24$$

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial.

3)  $n = 4, x = 3, p = \frac{1}{6}$

3) C

A) 0.0039

B) 0.0231

C) 0.0154

D) 0.0116

$$P(x=3) = {}^4C_3 \left(\frac{1}{6}\right)^3 \left(\frac{5}{6}\right)^1 = \text{binompdf}(4, \frac{1}{6}, 3) = 0.0154$$

Find the standard deviation,  $\sigma$ , for the binomial distribution which has the stated values of n and p. Round your answer to the nearest hundredth.

4)  $n = 36; p = .2$

4) DA)  $\sigma = 5.67$ B)  $\sigma = -0.01$ C)  $\sigma = 6.52$ D)  $\sigma = 2.40$ 

$$\sigma = \sqrt{np(1-p)} = \sqrt{36 \times 0.2 \times 0.8} = 2.4$$

Find the mean,  $\mu$ , for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth.

5)  $n = 33; p = .2$

5) AA)  $\mu = 6.6$ B)  $\mu = 6.1$ C)  $\mu = 7.3$ D)  $\mu = 6.9$ 

$$\mu = \text{Expected Value} = \text{Mean} = np = 33 \times 0.2$$