BitWith Bite

MATHEMATICS WORKSHEET

Random Variables

Chapter: Probability · Level ★★☆ · Time: 30 min

SCORE ___ / 20

Name _____ Class _____ Date _____

AFTER THIS WORKSHEET YOU CAN

✓ List the possible values of a random variable. ✓ Find P(X = k). ✓ Compute the expected value E(X).

✓ Distinguish discrete from continuous variables.

Section A · Concept Check • BEGINNER 4 × 1 = 4

1 A coin is flipped 3 times; X = number of heads. The possible values are:

◯ A. 0, 1, 2, 3 ◯ B. 1, 2, 3 ◯ C. 0, 1, 2 ◯ D. H, T

2 For that experiment, P(X = 2) =:

◯ A. 3/8 ◯ B. 1/8 ◯ C. 1/2 ◯ D. 2/8

3 For that experiment, P(X = 0) =:

◯ A. 1/8 ◯ B. 3/8 ◯ C. 0 ◯ D. 1/2

4 Using probabilities 1/8, 3/8, 3/8, 1/8 for X=0,1,2,3, E(X) =:

◯ A. 1.5 ◯ B. 2 ◯ C. 3 ◯ D. 0

Section B · Problem Solving • INTERMEDIATE 2 + 3×3 = 11

5 E(X) = Σ x · _____

6 For 3 coins, the possible values of X (heads) are _____

7 A coin is flipped 3 times; X = number of heads. List the possible values of X.

8 Find P(X = 2) for the experiment above.

9 Find P(X = 0) for the experiment above.

Section C · Challenge • CHALLENGE 5

10 Using 1/8, 3/8, 3/8, 1/8 for X=0,1,2,3, find E(X).

Reflection — the most useful thing I learned: _____

A ___/4 B ___/11 C ___/5 Total ___/20

Teacher's Signature

Parent's Signature

✂ ANSWER KEY — FOLD OR CUT BEFORE HANDING OUT

1-A 2-A 3-A 4-A | 5 P(X = x) 6 0, 1, 2, 3 7 = 0, 1, 2, 3 8 = 3/8 9 = 1/8 | 10 = 1.5