

ASSIGNMENT: Expected Value

DIRECTIONS: When there is uncertainty to an outcome, we can only estimate. The best way to estimate is to multiply the probability of an outcome by its value and then add those outputs together.

Expected value of a discrete random variable X

$$E(X) = \mu = \sum_x x P(X = x)$$

38.) In a game a player rolls a biased four-faced die. The probability of each possible score is shown below.

Score	1	2	3	4
Probability	$\frac{1}{15}$	$\frac{2}{5}$	$\frac{1}{10}$	x

(a) Find the value of x .

(2)

(b) Find $E(X)$.

(3)

52.) A discrete random variable X has a probability distribution as shown in the table below.

x	0	1	2	3
$P(X = x)$	0.1	a	0.3	b

(a) Find the value of $a + b$.

(2)

(b) Given that $E(X) = 1.5$, find the value of a and of b .

(4)

(Total 6 marks)