



Probability and Counting - Random Variables - Intro

- 1** Which partial outcome table shows the random variable X calculated correctly?

Experiment: flip 2 coins. Let X = the number of heads. Which partial outcome table lists X correctly for its outcomes?

- 2** Which list shows every outcome for this value of X ?

Experiment: roll two dice. Let X = the sum of the two dice. Which list shows every outcome that gives $X = 5$?

A $\{(1, 1), (1, 4), (2, 3), (3, 2), (4, 1)\}$

B $\{(1, 4), (2, 3), (3, 2)\}$

C $\{(1, 4), (2, 3), (3, 2), (4, 1)\}$

D $\{(1, 5), (2, 4), (3, 3), (4, 2), (5, 1)\}$

- 3** Which set lists all the values X can take?

Experiment: flip 4 coins. Let X = the number of heads. What values can X take?

A $\{0, 1, 2, 3, 4, 5\}$

B $\{0, 1, 2, 3, 4\}$

C $\{1, 2, 3, 4, 5\}$

D $\{1, 2, 3, 4\}$

- 4** Which of these is a suitable random variable X for the experiment?

Experiment: roll a die 3 times. Which of these could be the random variable X ?

A The number of even rolls

B The probability of rolling an even number

- 5** What is $P(X = 1)$?

A 0.20

B 0.80

C 0.90

D 0.10

- 6** Find the probability.

A 0.90

B 0.70

C 0.80

D 0.10

- 7** Find the probability.

A 0.70

B 0.90

C 0.40

D 0.60

- 8** What is the missing probability?

A 0.60

B 0.45

C 0.40

D 0.35



Probability and Counting - Random Variables - Intro

9 Is this a valid probability table?

A Yes, it is a valid probability table

B No, it is not a valid probability table

10 Which expression correctly calculates the expected value $E(X)$?

A $0(1.60) + 1(1.30) + 2(1.10)$

B $0.60 + 0.30 + 0.10$

C $0 + 0.60 + 1 + 0.30 + 2 + 0.10$

D $0(0.60) + 1(0.30) + 2(0.10)$

11 What is the expected value $E(X)$?

A 2.1

B 1

C 3

D 1.1

12 What is the expected gain or loss per ticket?

A \$5.5

B -\$4.5

C -\$5.5

D \$6.5

13 Is this a fair game?

A Yes, the game is fair

B No, the game is not fair

14 What ticket price would make this a fair game?

A \$0

B \$20.5

C \$20

D \$25

15 What prize value would make this a fair game?

A \$40

B \$50

C \$45

D \$35