

Quiz Chapter 20

Indicate the answer choice that best completes the statement or answers the question.

	1	2	3	4	5	6	7	8	9	10
a										
b										
c										
d										
e										

1. You play a game with two possible outcomes. Outcome A has probability 0.4 and outcome B has probability 0.6. When B occurs, you win \$2.00; otherwise, you lose \$1.00. What is your expected value for this game?

- a. \$2.00
- b. -\$0.10
- c. \$0.20
- d. -\$0.80
- e. \$0.80

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A children's cancer center sells 150 raffle tickets to raise money. Tickets cost \$100 each. One ticket will be drawn at random for the \$8000 prize: a new men's Rolex watch.

2. The children's center sells all 150 raffle tickets. How much money does it make, on average, per ticket?

- a. \$8000
- ☒ b. \$7000
- c. \$100
- d. \$46
- e. \$46.67

$$150 \times 100$$

A game involving a pair of dice pays you \$4 with probability $16/36$, costs you \$2 with probability $14/36$, and costs you \$6 with probability $6/36$.

3. What is your expected net result, in dollars, per play?

- a. $-\$8$
- b. $-\$1.78$
- c. \$0
- d. \$1.78
- e. \$8

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A grocery chain runs a prize game by giving each customer a ticket that may win a prize when a box is scratched. Printed on the ticket are the following probabilities for a customer who shops once a week:

Amount won	Probability
\$1000	0.01
\$100	0.10
\$10	0.20

4. What is the expected value of a customer's winnings in this game?

- a. \$22.00
- b. \$10.00
- c. \$370.00
- d. \$0.31
- e. \$100

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5. A multiple-choice exam offers five choices for each question. Jason just guesses the answers, so he has probability $1/5$ of getting any one answer right. One of your math major friends tells you that the assignment of probabilities to the number of questions Jason gets right out of 10 is (rounded to three decimal places the following:

Number right	0	1	2	3	4	5	6	7	8	9	10
Probability	0.056	0.188	0.282	0.250	0.146	0.058	0.016	0.003	0.000	0.000	0.000

What is the expected number of right answers Jason will get if the test has 10 questions?

- a. 2.282
- b. 2.493
- c. 3.5
- d. 5
- e. Can't tell from the information given

In many popular board games, a player rolls two dice and moves the number of spaces equal to the sum shown on the dice. Here is the assignment of probabilities to the sum of the numbers on the up faces when two dice are rolled:

Outcome	2	3	4	5	6	7	8	9	10	11	12
Probability	1/36	2/36	3/36	4/36	5/36	6/36	5/36	4/36	3/36	2/36	1/36

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6. Suppose you pay \$5 to roll the two dice, and you'll win a dollar amount equal to the sum of the two dice. What is your expected profit for this game?

- a. \$2
- b. \$5
- c. \$4
- d. \$6.50
- e. \$7

A game involving a pair of dice pays you \$4 with probability $16/36$, costs you \$2 with probability $14/36$, and costs you \$6 with probability $6/36$.

7. If you play this game many times, in the long run how will your actual average gain per play compare with your answer to the previous question?

- a. Smaller
- b. Bigger
- c. About the same
- d. The question can't be answered.

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A multiple-choice exam offers four choices for each question. Paul just guesses the answers, so he has probability $\frac{1}{4}$ of getting any one answer right.

8. What is the expected number of right answers Paul will get if the test has 20 questions?

- a. 5
- b. 4
- c. 2
- d. $\frac{1}{4}$
- e. Can't tell from the information given.

A children's cancer center sells 150 raffle tickets to raise money. Tickets cost \$100 each. One ticket will be drawn at random for the \$8000 prize: a new men's Rolex watch.

9. A second hospital is also conducting a benefit raffle to raise funds. They have 8000 tickets that also cost \$100 each, and one ticket will be drawn at random also for a \$350,000 prize—a new custom home. Which raffle has the best value for you per ticket?

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- a. Neither one; the expected net value of a ticket is the same for both raffles.
 - b. The first raffle, because there are fewer tickets from which to choose a winner.
 - c. The second raffle, because the prize is bigger.
 - d. The first raffle, because the expected net value per ticket is higher.
 - e. The second raffle, because the expected net value per ticket is higher.
10. What is the expected net value of a raffle ticket?
- a. -\$46.00
 - b. -\$46.67
 - c. \$100
 - d. \$7900.00
 - e. \$8000

Name: _____ Class: _____ Date: _____

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Answer Key

1. e

2. e

3. c

4. a

5. b

6. a

7. c

8. a

9. d

10. b