

Evaluation due May 3, 2021 21:08 +03

## Evaluation 5 Problem 1

1/1 point (graded)

Suppose you have two coins in a bag: one fair coin and one trick coin that has heads on both sides.

Without looking, you take one coin from the bag at random and flip it. What is the probability that it comes up heads? *Choose the best answer.*

☐  $\frac{1}{4}$

☐  $\frac{1}{3}$

☐  $\frac{1}{2}$

☒  $\frac{3}{4}$



Submit

You have used 1 of 2 attempts

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✓ Correct (1/1 point)

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## Evaluation 5 Problem 2

1/1 point (graded)

Now suppose that, as in Problem 1, you have two coins in a bag: one fair coin and one trick coin that has heads on both sides.

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Without looking, you take one coin from the bag at random and flip it, and it comes up heads. What is the probability the coin you chose was the fair coin?  
*Choose the best answer.*

☐  $\frac{1}{4}$

☒  $\frac{1}{3}$

☐  $\frac{1}{2}$

☐  $\frac{2}{3}$



Submit

You have used 1 of 2 attempts

✓ Correct (1/1 point)

## Evaluation 5 Problem 3

1/1 point (graded)

Assume that among households with an annual income over \$100,000, 75% own SUVs, while among households with an annual income under \$100,000, only 25% do. Households making over \$100,000 make up one quarter of all households in the country.

What are the odds that an SUV driver's household income is over \$100,000?  
*Choose the best answer.*

☐  $\frac{3}{16}$

☐  $\frac{15}{31}$

☒  $\frac{1}{2}$

☐  $\frac{9}{16}$



You have used 1 of 2 attempts

✓ Correct (1/1 point)

## Evaluation 5 Problem 4

1/1 point (graded)

Say you're playing three-card poker; that is, you're dealt three cards in a row at random from a standard deck of 52 cards.

What are the odds of getting a pair or three of a kind? *Choose the best answer.*

☐  $\frac{52 \times 48 \times 44}{52!}$

☒  $\frac{22,776}{132,600}$

☐  $\frac{109,824}{132,600}$

☐  $\frac{132,600}{22,776}$



You have used 1 of 2 attempts

✓ Correct (1/1 point)

## Evaluation 5 Problem 5

1/1 point (graded)

As in Problem 4, you're playing three-card poker; that is, you're dealt three cards in a row at random from a standard deck of 52 cards.

Now suppose that your first two cards are of different denominations. What's the probability of getting a pair? *Choose the best answer.*

☐  $\frac{3}{52}$

☐  $\frac{1}{13}$

☒  $\frac{6}{50}$

☐  $\frac{2}{13}$



Submit

You have used 1 of 2 attempts

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✓ Correct (1/1 point)

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## Evaluation 5 Problem 6

1/1 point (graded)

As in Problems 4 and 5, you're playing three-card poker; that is, you're dealt three cards in a row at random from a standard deck of 52 cards.

Now suppose that you are dealt a pair or three of a kind in the three cards. What are the odds that you had a pair on your first two cards; that is, that your first two cards were of the same denomination? *Choose the best answer.*

☐  $\frac{22,776}{132,600}$

☐  $\frac{1}{13}$

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☒  $\frac{7,800}{22,776}$

☐  $\frac{3}{51}$

**Submit**

You have used 1 of 2 attempts

✓ Correct (1/1 point)

## Evaluation 5 Problem 7

1/1 point (graded)

You own a very nice umbrella, which keeps you totally dry, but it's also rather heavy, so you don't like to carry it every day.

You also have bad luck with the weather. Five days out of the seven days in a week, you carry your umbrella, but the other two days you decide to risk it and leave the umbrella at home. When you're carrying the umbrella, it rains  $\frac{1}{3}$  of the time, but when you are not carrying the umbrella it rains  $\frac{5}{6}$  of the time.

It's raining today. What is the probability that you are carrying your umbrella?  
*Choose the best answer.*

☐  $\frac{1}{6}$

☐  $\frac{1}{3}$

☒  $\frac{1}{2}$

☐  $\frac{5}{7}$



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You have used 1 of 2 attempts

✓ Correct (1/1 point)

## Evaluation 5 Problem 8

1/1 point (graded)

In the game of Texas Hold 'Em, you choose your hand from among seven cards: two that are dealt to you specifically, plus five more that are available to all players.

Suppose the two cards dealt to you are of different denominations. What is the probability that you'll be able to make four of a kind out of all seven cards available to you? *Choose the best answer.*

☒ 
$$\frac{2 \times \binom{47}{2} + 11 \times \binom{46}{1}}{\binom{50}{5}}$$

☐ 
$$\frac{2 \times \binom{52}{2} + 11 \times \binom{52}{1}}{\binom{52}{5}}$$

☐ 
$$\frac{2 \times \binom{50}{2} + 13 \times \binom{46}{1}}{\binom{50}{5}}$$

☐ 
$$\frac{2 \times \binom{47}{2} + 13 \times \binom{46}{1}}{\binom{52}{5}}$$



Submit

You have used 1 of 2 attempts

✓ Correct (1/1 point)

