

Name: _____

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Quiz 3

1. What is the probability that a card selected at random from a standard deck of 52 cards is an ace or a heart?
2. What is the conditional probability that exactly four heads appear when a fair coin is flipped five times, given that the first flip came up heads?
3. Are the events in problem 2 independent or dependent? Why?

4. An electronics company is planning to introduce a new gaming console. The company commissions a marketing report for each new product that predicts either the success or the failure of the product. Of new products introduced by the company, 60% have been successes. Furthermore, 70% of their successful products were predicted to be successes, while 40% of failed products were predicted to be successes. Find the probability that this new console will be successful if its success has been predicted.

5. What is the expected value when a \$1 lottery ticket is bought in which the purchaser wins exactly \$10 million if the ticket contains the six winning numbers chosen from the set $\{1, 2, 3, \dots, 50\}$ and the purchaser wins nothing otherwise.