

INR 3303 — Parametric Choice Exercises
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Remember: Ask yourself first whether any part of the problem is guaranteed to happen (100% probability), then determine the probability of each of the other things that *might* happen and multiply those probabilities by the relevant utilities.

Show the utility equation, as well as the answer, for each problem.

1. What is the expected utility of a promotion at your local grocery store that gives a coupon worth \$10 to every fifth customer who comes into the store, assuming that you go to the store **twice** while the promotion is running.
2. What is the expected utility of betting \$2 that you can draw a "club" out of a regular deck of 52 cards, assuming that you will win \$16 if you succeed?
3. Suppose a friend offers to pay you \$128 if you can flip a coin five times and get exactly the following sequence: Heads-Tails-Heads-Tails-Heads. If any other sequence occurs, however, you must, you must pay your friend \$5. Calculate the expected utility of this situation. Should you take the bet?
4. Suppose you invest \$10,000 in a business that promises to pay you a 20% return on your investment (i.e., \$12,000) if the business succeeds. If the business fails, however, you will receive nothing. You estimate that there is a 75% chance that the business will succeed. Calculate the expected utility. Should you invest?
5. What is the expected utility of agreeing to flip a coin three times under the following circumstances? If it is Heads on the first try, you win \$5; but you lose \$2 if it is Tails. If it is Heads on the second try, you win \$2; but you lose \$10 if it is Tails. If it is Heads on the third try, you win \$2; but you lose \$2 if it is Tails. Finally, if it is Heads three times in a row, you win an extra \$20.