1. Recall that a roulette wheel has 38 slots. Eighteen are red, 18 are black, and 2 are green. You can bet on 6 different numbers. If any of them comes up, you receive $6 back for each $1 bet. What is the expected loss on a $1 bet? Please round the answer to two decimal places.

   a. $0.01
   b. $0.08
   c. $0.07
   d. $0.05
   e. $0.04

2. In a gambling game, you receive a payoff of $82 if you roll a sum of 4, and $7 if you roll a sum of 7 on two dice. Otherwise, you receive no payoff. What is the average payoff per play?

   a. $8
   b. $9
   c. $6
   d. $12
   e. $5

3. In a carnival game, you roll 2 dice. If the sum is 5, you receive a $6 payoff. If the sum is 10, you receive a $13 payoff. What is the expected payoff?

   a. $2.05
   b. $1.35
   c. $1.75
   d. $1.55
   e. $1.85

4. In a gambling game, you pick 1 card from a standard deck. If you pick an ace, you win $10. If you pick a picture card (J, Q, or K), you win $5. Otherwise, you win nothing. How much should a carnival booth charge you to play this game if they want an average profit of $0.60 per game? (hint: first find the average payout)

   a. $2.12
   b. $2.62
   c. $2.72
   d. $2.22
   e. $2.52
5. You have a job working for a mathematician. She pays you each day according to what card you select from a bag. Two of the cards say $220, five of them say $100, and three of them say $50. What is your expected (average) daily pay?

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\text{\$ \_\_\_\_\_\_\_\_\_\_\_\_\_ per day}
\]

6. An apartment complex has 20 air conditioners. Each summer, a certain number of them have to be replaced.

<table>
<thead>
<tr>
<th>Number of Air Conditioners Replaced</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.21</td>
</tr>
<tr>
<td>1</td>
<td>0.37</td>
</tr>
<tr>
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<td>0.13</td>
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<td>0.11</td>
</tr>
<tr>
<td>4</td>
<td>0.11</td>
</tr>
<tr>
<td>5</td>
<td>0.07</td>
</tr>
</tbody>
</table>

What is the expected number of air conditioners that will be replaced in the summer?

7. In a gambling game, you receive a payoff of $46 if you roll a sum of 10, and $7 if you roll a sum of 7 on two dice. Otherwise, you receive no payoff. What is the average payoff per play?

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\text{\$ \_\_\_\_\_\_\_\_\_\_\_\_\_}
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