1. Use the spinner shown to answer the question. Assume that it is equally probable that the pointer will land on any one of the colored regions. If the pointer lands on a borderline, spin again.

Find the probability that the pointer lands in a yellow region.

The probability that the pointer lands in a yellow region is \( \frac{\phantom{x}}{\phantom{x}} \).
(Type a simplified fraction.)

2. A dart lands at random on the board shown. Find the probability that the dart will land on the specified color.

What is \( P(\text{red}) \)?

\[
P(\text{red}) = \frac{\phantom{x}}{\phantom{x}}
\]
(Simplify your answer. Type an integer or a fraction.)
3. A box of gumdrops was found to contain the number of gumdrops listed in the table. If one gumdrop is drawn from the box, what is the probability of drawing an orange gumdrop? What are the odds in favor of drawing an orange gumdrop?

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lemon</td>
<td>5</td>
</tr>
<tr>
<td>Orange</td>
<td>6</td>
</tr>
<tr>
<td>Cherry</td>
<td>5</td>
</tr>
<tr>
<td>Grape</td>
<td>4</td>
</tr>
</tbody>
</table>

What is the probability of drawing an orange gumdrop?

☐

(Simplify your answer. Type an integer or a fraction.)

What are the odds in favor of drawing an orange gumdrop?

☐ A. 10 to 3
☐ B. 10 to 7
☐ C. 3 to 7
☐ D. 3 to 10

4. Of the last 60 people who went to the cash register at a department store, 13 had blond hair, 19 had black hair, 25 had brown hair, and 3 had red hair. Determine the empirical probability that the next person to come to the cash register has brown hair.

\[ P(\text{brown}) = \]

(Simplify your answer. Type an integer or a fraction.)

5. A pair of dice is rolled. What is the probability of getting a sum of 12?

What is the probability of getting a sum of 12?

☐

(Simplify your answer. Type a fraction.)
6. Compute the probability of event E if the odds in favor of E are as shown below.

(A) 25 to 17  (B) 17 to 19  (C) 27 to 29  (D) 29 to 14

(A) \( P(E) = \) \( \quad \) (Type an integer or a fraction.)

(B) \( P(E) = \) \( \quad \) (Type an integer or a fraction.)

(C) \( P(E) = \) \( \quad \) (Type an integer or a fraction.)

(D) \( P(E) = \) \( \quad \) (Type an integer or a fraction.)

7. In 5-card poker, the number of outcomes favorable to an event E is given in the table. Find the probability of being dealt a flush.

<table>
<thead>
<tr>
<th>Event E</th>
<th># of Outcomes Favorable to E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royal flush</td>
<td>4</td>
</tr>
<tr>
<td>Straight flush</td>
<td>36</td>
</tr>
<tr>
<td>Four of a kind</td>
<td>624</td>
</tr>
<tr>
<td>Full house</td>
<td>3744</td>
</tr>
<tr>
<td>Flush</td>
<td>5108</td>
</tr>
<tr>
<td>Straight</td>
<td>10,200</td>
</tr>
<tr>
<td>Three of a kind</td>
<td>54,912</td>
</tr>
<tr>
<td>Two pairs</td>
<td>123,552</td>
</tr>
<tr>
<td>One pair</td>
<td>1,098,240</td>
</tr>
<tr>
<td>No pair</td>
<td>1,302,540</td>
</tr>
<tr>
<td>Total</td>
<td>2,598,960</td>
</tr>
</tbody>
</table>

The probability of being dealt a flush is \( \frac{\quad}{\quad} \).
(Round to 8 decimal places.)

8. A single fair die is tossed. Find the probability of rolling a number greater than 2.

What is the probability of rolling a number greater than 2? \( \frac{\quad}{\quad} \)
(Simplify your answer. Type a fraction.)
9. A single die is rolled one time. Find the probability of rolling a number greater than 5 or less than 4.

   The probability is \[ \text{\underline{\hspace{2cm}}} \].
   (Simplify your answer.)

10. You are dealt one card from a 52-card deck. Find the probability that you are not dealt a three.

   The probability is \[ \text{\underline{\hspace{2cm}}} \]. (Type a fraction. Simplify your answer.)

11. Suppose you draw a card from a well-shuffled deck of 52 cards. What is the probability of drawing a 10 or a queen?

   \[ P(10 \text{ or queen}) = P(10) + P(\text{queen}) = \text{\underline{\hspace{2cm}}} \]
   (Simplify your answer. Type an integer or a fraction.)

12. What is the probability of getting either a club or an ace when drawing a single card from a deck of 52 cards?

13. Two cards are drawn without replacement from an ordinary deck, find the probability that the second is a seven, given that the first is not a seven.

   What is the conditional probability? \[ \text{\underline{\hspace{2cm}}} \] (Simplify your answer.)

14. Two cards are drawn without replacement from an ordinary deck. Find the probability that they are two clubs.

   The probability is \[ \text{\underline{\hspace{2cm}}} \].
   (Type an integer or a simplified fraction.)
15. Given two events A and B within the sample space S, 

\[ P(A|B) = \frac{n(A \text{ and } B)}{n(B)} \]

Use this result to find the probability \( P(\text{spade}|\text{queen}) \) when a single card is drawn from a standard 52-card deck.

\[ P(\text{spade}|\text{queen}) = \square \]

(Type an integer or a fraction.)

16. Assume the probability is \( \frac{1}{2} \) that a child born is a girl. If a family has three children, what is the probability that they have a) exactly one girl? b) at most two boys?

a) The probability of getting exactly one girl is \( \square \).

b) The probability of getting at most two boys is \( \square \).

17. A grocery manager discovered that, on any given weekday, 65% of the customer sales amount to more than $100. What is the probability that the first 2 sales will be more than $100? Treat the sales as independent events.

The probability that the first 2 sales are each more than $100 is \( \square \).

(Round to the nearest thousandth.)

18. 4 women and 5 men are being interviewed for a job opening. Find the probability that the first person interviewed will be a man.

The probability is \( \square \).

(Type an integer or a simplified fraction.)
19. A used-car dealer gets complaints about his cars as shown in the table.

<table>
<thead>
<tr>
<th>Number of complaints per day</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability</td>
<td>0.01</td>
<td>0.07</td>
<td>0.14</td>
<td>0.25</td>
<td>0.33</td>
<td>0.12</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Find the expected number of complaints per day.

The expected number of complaints per day is \[ \square \].
(Do not round your answer.)

20. A college foundation raises funds by selling 600 raffle tickets for a new car worth $35,000 at $120 each. Find the expected net winnings of a person buying one of the tickets.

The expected net winnings are $\[ \square \].
(Round to the nearest hundredth.)
1. \( \frac{1}{5} \)

2. \( \frac{1}{6} \)

3. \( \frac{3}{10} \)

4. \( \frac{5}{12} \)

5. \( \frac{1}{36} \)

6. \( \frac{25}{42} \)

7. \( \frac{36}{17} \)

8. \( \frac{27}{29} \)

9. \( \frac{56}{43} \)

10. \( \frac{0.00196540}{1} \)

11. \( \frac{2}{13} \)

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12. \( \frac{4}{13} \)

13. \( \frac{4}{51} \)

14. \( \frac{1}{17} \)

15. \( \frac{1}{4} \)

16. \( \frac{3}{8} \)

17. 0.423

18. \( \frac{5}{9} \)

19. 3.5

20. -61.67