1. There are 5 red counters, 2 yellow counters and 3 green counters in a jar.

Tommy takes a counter at random from the jar.

a) What is the probability that he takes a yellow counter?
\[
\frac{2}{10} \text{ oe}
\]

b) What is the probability that he takes a blue counter?
\[
0
\]

2. A sandwich shop offers the following options.

<table>
<thead>
<tr>
<th>Bread</th>
<th>Filling 1</th>
<th>Filling 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>Egg</td>
<td>Salad</td>
</tr>
<tr>
<td>or Brown</td>
<td>or Ham</td>
<td>or coleslaw</td>
</tr>
</tbody>
</table>

Continue this list of all the possible combinations of sandwich:
- White, Egg, Salad, WEC, WHS, WHC
- BES, BEC, BHS, BHC

3. 300 students pick either menu 1 or menu 2 for their lunch.
The table shows the choices. Complete the table.

<table>
<thead>
<tr>
<th></th>
<th>Year 7</th>
<th>Year 8</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menu 1</td>
<td>28</td>
<td>32</td>
<td>60</td>
</tr>
<tr>
<td>Menu 2</td>
<td>102</td>
<td>138</td>
<td>240</td>
</tr>
<tr>
<td>Total</td>
<td>130</td>
<td>170</td>
<td>300</td>
</tr>
</tbody>
</table>

a) What is the probability that a student chooses menu 1?
\[
\frac{60}{300} \text{ oe}
\]

b) What is the probability a year 8 student chooses menu 2?
\[
\frac{138}{170} \text{ oe}
\]

4. List the possible outcomes when rolling a six-sided dice.

\[S = \{1, 2, 3, 4, 5, 6\}\]

Jack says the probability of rolling a 5 on a fair six-sided dice is \(\frac{1}{5}\).

Explain why Jack is wrong.

The probability is \(\frac{1}{6}\) because there are 6 different equally likely outcomes.
Two bags contain counters as shown.

A counter is taken from each bag and the score is the product of these numbers.

a) Complete the table of possible scores.

<table>
<thead>
<tr>
<th>Bag 1</th>
<th>Bag 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2 3 4</td>
</tr>
<tr>
<td>5</td>
<td>10 15 20</td>
</tr>
<tr>
<td>6</td>
<td>12 18 24</td>
</tr>
</tbody>
</table>

b) What is the probability that the score is less than 6?

\[ \frac{3}{9} \text{ oe} \]

\[ \frac{4}{9} \]

c) What is the probability that the score is a multiple of 4?

The Venn diagram shows how many students in a class have their own TV or a mobile phone.

a) How many students have a mobile phone but do not have a TV?

20

b) One student is picked at random. What is the probability that this student has a mobile phone?

\[ \frac{29}{32} \]

50 people are asked if they studied French or Spanish at school.
8 people studied both French and Spanish.
20 people studied Spanish altogether.
6 people did not study either French or Spanish.

Show this information in the Venn diagram.

There are 2 piles of cards.
- The first pile of cards contains the letters A, B, C, D, E.
- The second pile has the numbers 1 to 12 inclusive.

One card is picked at random from each pile. How many possible outcomes are there altogether?

60

Total marks