1. Below is the graph of the figure

Thus the figure is a triangle with base 6 and height 3 so that the area is
\[
\frac{1}{2} (6)(3) = 9
\]

2. Let \(d\) = number of dimes, \(n\) = number of nickels, and \(q\) = number of quarters. Then the following equations must be true
\[
d + n + q = 40
\]
\[
10d + 5n + 25q = 590
\]
\[
5d + 25n + 10q = 545
\]
The solution to this system of linear equations is \(d = 10\), \(n = 13\), and \(q = 17\). Thus, the number of nickels is 13.

3. Approach 1: There are two possible boy (B) / girl (G) arrangements that will work:

\[
B \ G \ B \ G \ B \ G \ \text{ OR } \ G \ B \ G \ B \ G \ B
\]
There are \(3P_3 = 3!\) ways to place the three boys and \(3P_3 = 3!\) ways to place the three girls in either of these two arrangements. There are \(6P_6 = 6!\) ways to place the children in ANY arrangement. Thus the probability is
\[
\frac{2 \cdot 3! \cdot 3!}{6!} = \frac{1}{10}
\]

Approach 2: Choose any child for the first seat (prob = 1) (call the sex of this child A), next child must be sex B (prob = 3/5), next child sex A (prob = 2/4), next child sex B (prob = 2/3), next child sex A (prob = 1/2), last child sex B (prob =1). Thus, using the multiplication rule, the probability is
\[
1 \cdot \frac{3}{5} \cdot \frac{2}{4} \cdot \frac{2}{3} \cdot \frac{1}{2} \cdot 1 = \frac{1}{10}
\]