Answers

1. Assuming boys/girls are distinguishable from each other (no twins or triplets), then there are $2(3^2)$ ways.

2. Divide the star into 5 triangles and a pentagon. Use the interior angles of the pentagon to deduce that each interior angle is $36^\circ$, and the sum is 180. This can be generalised to an $n$-sided star: the angle sum is $180(n - 4)$.

3. Centre is at $(2, 4, 6)$, drawing it requires more skill.

4. 80.

5. $2000 \times 4000 - 3999 = 7996001$