

## Solution Sheet 14, August 27, 2012

### 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.  $2000 * 4000 - 3999 = 7996001$