



The Two Teams Puzzle

22
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Answer: 15

There are some excellent ways to solve this puzzle using permutations and combinations but they are too complex to explain on one side. I'm going to give a solution that is a mixture of logic and just brute force.

There has to be a team of 3 and a team of 4.

Either Dave and Karen will be in the team of 3 or in the team of 4. If we find the possible teams in each of these situations and add them together we will get the total possibilities:

| | | | | | | | | | | | |
|--|---|------------------|--------------------|-------------------|----------------|-------------------|------------------|---------------|--------------------|-----------------|----------------|
| <p>If Dave and Karen are on the team of 3:</p> | <p>If Dave and Karen are on the team of 4:</p> | | | | | | | | | | |
| <p>then they need 1 of the 5 other people with them in that team.</p> <p>This means there are 5 possible teams of 3 with Dave and Karen in them.</p> | <p>then they need 2 of the 5 other people with them in that team.</p> <p>Choosing 2 from 5 is an A-Level statistics function. The easiest thing to do would be to write them all out:</p> <table border="1"> <tr> <td>Heather & Stuart</td> <td>Heather & Kayleigh</td> </tr> <tr> <td>Heather & Cameron</td> <td>Heather & Evie</td> </tr> <tr> <td>Stuart & Kayleigh</td> <td>Stuart & Cameron</td> </tr> <tr> <td>Stuart & Evie</td> <td>Kayleigh & Cameron</td> </tr> <tr> <td>Kayleigh & Evie</td> <td>Cameron & Evie</td> </tr> </table> <p>This means there are 10 possible teams of 4 with Dave and Karen in them.</p> | Heather & Stuart | Heather & Kayleigh | Heather & Cameron | Heather & Evie | Stuart & Kayleigh | Stuart & Cameron | Stuart & Evie | Kayleigh & Cameron | Kayleigh & Evie | Cameron & Evie |
| Heather & Stuart | Heather & Kayleigh | | | | | | | | | | |
| Heather & Cameron | Heather & Evie | | | | | | | | | | |
| Stuart & Kayleigh | Stuart & Cameron | | | | | | | | | | |
| Stuart & Evie | Kayleigh & Cameron | | | | | | | | | | |
| Kayleigh & Evie | Cameron & Evie | | | | | | | | | | |

Adding these together gives us **15** possible ways of dividing the 7 people into teams. To see them all [click here](#).