24. First position the women relative to each other. Since there are 10 women, there are $P(10,10)$ ways to do this. This creates 11 slots where a man (but not more than one man) may stand: in front of the first woman, between the first and second women, ..., between the ninth and tenth women, and behind the tenth woman. We need to choose six of these positions, in order, for the first through six man to occupy (order matters, because the men are distinct people). This can be done is $P(11,6)$ ways. Therefore the answer is $P(10,10) \cdot P(11,6) = 10! \cdot 11!/5! = 1{,}207{,}084{,}032{,}000$.

40. We might as well assume that the first person sits in the northernmost seat. Then there are $P(5,5)$ ways to seat the remaining people, since they form a permutation reading clockwise from the first person. Therefore the answer is $5! = 120$.