Number of Possible m x n Positions on Checkerboard

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The following is a solution for the problem: Given b black checkers, which may have any of u types (man, king, etc.), and w white checkers having any of v types, on a checkerboard with s usable squares, what is the number of possible unique positions P?

Combinatorial analysis shows the formula for this is as follows.

$$P = \frac{(b+w)! \cdot u^b \cdot v^w \cdot s!}{b! \cdot w! \cdot [s-(b+w)]!}$$

For a 32 square checkerboard with 3 white and 3 black pieces with 2 possible types (man or king) then P is as follows.

$$P = \frac{6! \cdot 2^3 \cdot 2^3 \cdot 32!}{3! \cdot 3! \cdot 26!} = 835146547200$$

Combinatorics can be tricky and there may well be errors in this analysis. Please send corrections to `bobnewell@bobnewell.net`.