

## Quiz

1.  $2!$  ways to arrange 2 books

$(n-1)!$  ways to arrange  $n-1$  books

$n!$  ways to arrange  $n$  books

$A$  = book 1 and book 2 being adjacent

$$P(A) = \frac{2!(n-1)!}{n!} \text{ treat the 2 books as one}$$

2. a) let the favourite pair be LL, LR

$38C_4$  ways to choose 6 with the 2 favourites

$40C_6$  total ways to choose 6

$$b) P(\text{At least 1 pair}) = \frac{20 \cdot 38C_4}{40C_6}$$

$$P(\text{No pairs}) = 1 - P(\text{At least 1 pair})$$

$$= 1 - \frac{38C_4 \cdot 20}{40C_6}$$

$$c) P(\text{exactly 1 pair}) = \frac{20 \cdot 19C_4 \cdot (2C_1)^4}{40C_6} \text{ ways to choose 1 pair exactly}$$

total ways to choose 6