

- 20** **8** Out of 10 contestants, six are to be selected for the final round of a competition. **1**
MX
1 Four of those six will be placed 1st, 2nd, 3rd and 4th.
In how many ways can this process be carried out?
- A $\frac{10!}{6!4!}$ B $\frac{10!}{6!}$ C $\frac{10!}{4!2!}$ D $\frac{10!}{4!4!}$

C

$$\begin{aligned}\text{Number of ways} &= {}^{10}C_6 \times {}^6P_4 \\ &= \frac{10!}{6! \times 4!} \times \frac{6!}{2!} \\ &= \frac{10!}{4! \times 2!}\end{aligned}$$

$$\begin{aligned}\text{Alternately, number of ways} &= {}^{10}C_6 \times {}^6C_4 \times 4! \\ &= \frac{10!}{6! \times 4!} \times \frac{6!}{4! 2!} \times 4! \\ &= \frac{10!}{4! \times 2!}\end{aligned}$$

State Mean: 0.55

* These solutions have been provided by [projectmaths](http://projectmaths.com.au) and are not supplied or endorsed by NESA.

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