

POTWI 20 SOLUTION

The letters are L, E, V, E, L (two L's, two E's, one V).

All arrangements. $\frac{5!}{2!2!} = 30$.

L's adjacent. Glue the two L's into one block: we arrange the block LL, E, V, E, which gives $\frac{4!}{2!} = 12$.

E's adjacent. By the same argument, 12.

Both pairs adjacent. Arrange the blocks LL, EE and the letter V: $3! = 6$.

By inclusion–exclusion, the arrangements with *neither* pair adjacent number

$$30 - 12 - 12 + 6 = 12.$$

Answer: (B) 12
