Stars & Bars (Care Packs)

CKSTEM Math Problem Solving · Grades 5–8

> Try each problem on your own first — then watch the solution videos.

★ Factorial · Permutation · Combination

Four friends — Ada, Ben, Cy, and Dee — want to send TWO of them to represent the class. How many different pairs of representatives are possible?

WORK IT OUT HERE

LO Reserved Seats

A school is sharing 4 identical care packs among 3 support rooms — the Quiet Room, the Newcomer Room, and the Reading Corner. Each room must get at least 1 care pack. How many different distributions are possible?

WORK IT OUT HERE

L1 Stars and Bars

A school is sharing 7 identical care packs among 3 support rooms. Each room must get at least 1 care pack. How many different distributions are possible?

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L2 Pick One, Count the Rest

A school is sharing 10 identical care packs among 3 support rooms — Quiet, Newcomer, and Reading. Each room must get at least 1 care pack. The Quiet Room must receive more care packs than the Reading Corner. How many different distributions are possible?

WORK IT OUT HERE

L3 Reserve, Then Bars

A school is sharing 10 identical care packs among 4 support rooms — Quiet, Newcomer, Reading, and Wellness. The Quiet Room must receive at least 3 care packs. Each other room must receive at least 1 care pack. How many different distributions are possible?

WORK IT OUT HERE

L4 Symmetry Halves

A school is sharing 14 identical care packs among 4 support rooms. Each room must receive at least 2 care packs. The Quiet Room must receive more care packs than the Newcomer Room. How many different distributions are possible?

WORK IT OUT HERE

L5 Choose, Then Pour

A school is sharing 14 identical care packs among 4 support rooms. Each room must get at least 2 and at most 6 care packs. Exactly two of the four rooms must end with an odd number of care packs. How many different distributions are possible?

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