



# APSMO

2023 : DIVISION J  
WEDNESDAY 6 SEPTEMBER 2023

OLYMPIAD

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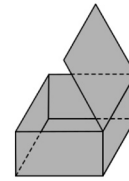
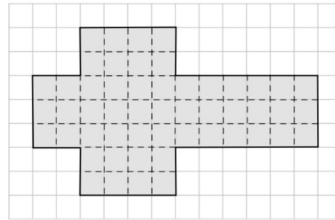
**Total Time Allowed: 30 Minutes**

- 4A.** The diagram shows a net of a three dimensional rectangular box.

That box is filled with sand.

The sand is then poured out into containers that are 2 units wide by 2 units high by 1 unit deep.

How many of these containers can be filled with the sand from the box?



*Write your answers in the boxes on the back.*



*Keep your answers hidden by folding backwards on this line.*

- 4B.** Every day, Riley adds to his collection of bottle caps by the same amount. In two days from now, he will have 152 bottle caps. Twenty days from now, he will have 242 bottle caps.

What was the number of bottle caps in Riley's collection 7 days ago?

- 4C.** The sum of seven consecutive counting numbers is 2023.

What is the least of these counting numbers??

- 4D.** The lollipops that Scarlett sells at her shop come in packs of 5, 9 or 11.

Scarlett can sell a customer 29 lollipops using 4 packs of 5 lollipops and one pack of 9 lollipops.

She knows any number a customer asks for above 30 lollipops she can make.

What is the largest number of lollipops she is not able to sell to a customer using any combinations of these packs?

- 4E.** The secret passcode for Chloe's Club is a four-digit number.

The passcode has only two prime factors.

One of those primes is a single-digit number.

The sum of the digits of the passcode is 16.

The last three digits of the code are the same. What is the passcode?