@title Quantitative Math Assessment: Combinatorics and Geometry

@description This assessment tests a student's ability to solve problems related to combinatorics and geometry, including counting possible arrangements and calculating dimensions based on given shapes.

// Use this block for each question when adding Multiple Choice Questions (MCQ)

@question A popular ice cream shop offers a special sundae where a customer can choose 1 ice cream flavor, 1 sauce, and 1 topping. The available options are listed in the table below. How many different sundae combinations are possible?

## Sundae Options

| Ice Cream Flavor | Sauce | Topping |

| :--- | :--- | :--- |

| Vanilla | Chocolate | Sprinkles |

| Chocolate | Caramel | Whipped Cream |

| Strawberry | | Cherries |

| Mint Chip | | Nuts |

@instruction Select the correct number of possible sundae combinations.

@difficulty easy

@Order 1

@option 11

@@option 32

@option 36

@option 40

@option 48

@explanation To find the total number of different sundae combinations, you multiply the number of options for each category. There are 4 ice cream flavors, 2 sauce choices, and 4 topping choices. Therefore, the total number of combinations is $4 \times 2 \times 4 = 32$.

@subject Quantitative Math

@unit Data Analysis & Probability

@topic Counting & Arrangement Problems

@plusmarks 1

// Use this block for each question when adding Multiple Choice Questions (MCQ)

@question The top view of a rectangular crate containing 9 tightly packed cylindrical cans is shown. If each can has a diameter of 8 centimeters, what are the dimensions, in centimeters, of the rectangular crate?

@instruction Select the correct dimensions of the rectangular crate.

@difficulty moderate

@Order 2

@option $8 \times 24$

@option $24 \times 24$

@@option $24 \times 24$

@option $16 \times 24$

@option $8 \times 16$

@explanation The image shows the cans arranged in a $3 \times 3$ grid.

To find the width of the crate, we must consider the diameter of three cans side-by-side. The width is $3 \times 8 \text{ cm} = 24 \text{ cm}$.

To find the length of the crate, we must consider the diameter of three cans side-by-side. The length is $3 \times 8 \text{ cm} = 24 \text{ cm}$.

Therefore, the dimensions of the rectangular crate are $24 \times 24$ cm.

@subject Quantitative Math

@unit Geometry and Measurement

@topic Area & Volume

@plusmarks 1