@question A local pizzeria offers a special where you can choose one crust, one sauce, and one topping. The available options are listed in the table below. How many different pizza combinations are possible?  
## Pizza Choices  
  
| Crust | Sauce | Topping |  
| :---: | :---: | :---: |  
| Thin | Tomato | Pepperoni |  
| Thick | Pesto | Mushrooms|  
| Stuffed | Alfredo | Onions |  
| | | Olives |  
| | | Peppers |  
  
@instruction To find the total number of combinations, multiply the number of options for each choice.  
@difficulty easy  
@Order 1  
@option 11  
@option 15  
@@option 45  
@option 30  
@explanation  
To find the total number of different pizza combinations, you must multiply the number of choices for each category.  
- There are 3 choices for the crust (Thin, Thick, Stuffed).  
- There are 3 choices for the sauce (Tomato, Pesto, Alfredo).  
- There are 5 choices for the topping (Pepperoni, Mushrooms, Onions, Olives, Peppers).  
  
The total number of combinations is the product of the number of options in each category:  
$3 \text{ (crusts)} \times 3 \text{ (sauces)} \times 5 \text{ (toppings)} = 45$  
Therefore, there are 45 different possible pizza combinations.  
@subject Quantitative Math  
@unit Data Analysis & Probability  
@topic Counting & Arrangement Problems  
@plusmarks 1

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@question The diagram shows the top view of a shipping carton packed with identical cylindrical cans. Each can has a height of 15 centimeters and a radius of 3 centimeters. Which of the following are the dimensions, in centimeters, of the smallest possible rectangular carton?  
[Image description: A top-down view of a rectangle. Inside the rectangle are 12 circles, arranged tightly in 3 columns and 4 rows, representing the tops of the cylindrical cans.]  
@instruction The dimensions of the carton are its length, width, and height. The length and width are determined by the arrangement and diameter of the cans. The height is determined by the height of a single can.  
@difficulty moderate  
@Order 2  
@option 15 \times 9 \times 12  
@option 15 \times 24 \times 18  
@@option 15 \times 18 \times 24  
@option 30 \times 18 \times 24  
@explanation  
First, determine the dimensions of a single can.  
- The radius is given as 3 cm, so the diameter is $2 \times 3 = 6$ cm.  
- The height is given as 15 cm.  
  
Next, determine the dimensions of the rectangular carton based on the arrangement of the cans.  
- \*\*Height:\*\* The height of the carton must be at least the height of one can, which is 15 cm.  
- \*\*Width:\*\* The diagram shows 3 cans arranged side-by-side along the width. The width of the carton is the sum of their diameters: $3 \text{ cans} \times 6 \text{ cm/can} = 18$ cm.  
- \*\*Length:\*\* The diagram shows 4 cans arranged side-by-side along the length. The length of the carton is the sum of their diameters: $4 \text{ cans} \times 6 \text{ cm/can} = 24$ cm.  
  
The dimensions of the smallest possible rectangular carton are Height x Width x Length, which are $15 \text{ cm} \times 18 \text{ cm} \times 24 \text{ cm}$.  
@subject Quantitative Math  
@unit Geometry and Measurement  
@topic Area & Volume  
@plusmarks 1