Multiplication of decimals.

Multiplying decimals involves a few steps:

1) **Write down the numbers**: Write down the decimal numbers you want to multiply. Let's say you want to multiply 2.31 and 2.3.
2) **Ignore the decimals for now**: Treat the numbers as if they were whole numbers. So, for 2.31 and 2.3, you multiply 231 and 23.
3) **Multiply the numbers**: Multiply the whole numbers as you normally would. In our example, 231 multiplied by 23 equals 5313.
4) **Count the decimal places**: Now, count the total number of decimal places in the numbers you're multiplying. In our example, 2.31 has two decimal places, and 2.3 has one decimal place. So, in total, there are 3 decimal places.
5) **Place the decimal point**: Starting from the right of the product, move the decimal point to the left the same number of places as counted in the previous step. In our example, we move the decimal point three places to the left, giving us 5.313.

So, 3.25 multiplied by 2.5 equals 5.313.

$$2.31 \cdot 2.3 = \frac{231}{100} \cdot \frac{23}{10} = \frac{231 \cdot 23}{1000} = \frac{5313}{1000} = 5.313$$

Combinatorics.

There are three cities: NYC, Atlanta, and Miami. NYC and Atlanta are connected by three roads, and Atlanta and Miami by two roads. How many routes are there to travel from NYC to Miami? You can only move in the direction of the arrows - from left to right.
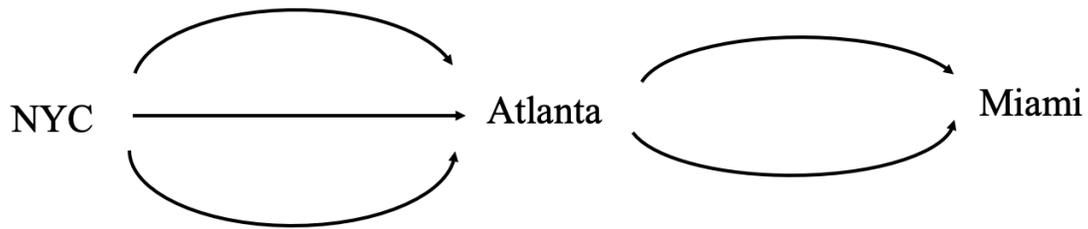
Solution: Whichever road one takes from NYC to Atlanta, they have two ways to get from Atlanta to Miami. It means, road from NYC to Atlanta serves as the start of two routes from Atlanta to Miami. So, the number of routes from NYC to Miami is twice the number of roads from NYC to Atlanta. And it gives $3 \cdot 2 = 6$ routes.

Homework. Review.

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1. 7260 people voted in the elections in the town, which is 24% of the town's population. How many inhabitants are in the town?

2. Compute

   U (a) $\dfrac{16}{12} - \dfrac{8}{9} =$ (b) $2\dfrac{5}{8} - \dfrac{17}{24} =$

3. Compute: (First make mixed number into irregular fraction if needed; then multiply)

   (a) $\dfrac{9}{16} \cdot \dfrac{4}{45} =$ (b) $1\dfrac{7}{20} \cdot \dfrac{4}{27} =$ **R** (c) $3\dfrac{3}{7} \cdot \dfrac{7}{24} =$

4. Compute

   S (a) $-6 - (-9) =$
   (b) $-2 - (7 + 6) =$
   (c) $-5 + (-4) =$
   Y (d) $-3 - (-6) + (-5) =$

5. Open parenthesis and simplify

   (a) $2(a - 3) - (2a - 9) =$
   (b) $4y - 2(5 - y) =$
   I (c) $12x - (x - 4) =$

6. Solve equations

   O (a) $2(3x - 2) = 20$
   (b) $-2x + 9 = -4x + 25$
   T (c) $-x + 8 = -4x - 1$

7. Write fractions as decimals:

   $\dfrac{2}{5} =$ $\dfrac{3}{2} =$ **I** $\dfrac{9}{4} =$

8. Evaluate:

(a) $0.5 + \dfrac{1}{3}$;   [C] (b) $2.82 + \dfrac{2}{5}$;

9. The cafe sells four types of milkshakes (Vanilla, Chocolate, Strawberry and Banana) and three types of an ice cream (Frozen Yogurt, Mochi, and Gelato). You have enough money for one milkshake and one ice cream. In how many ways can you choose your food? Write down all possible combinations.

Bonus Problem: Match your answers from problems above with the numbers in the table below. Fill in orange letters corresponding to each answer. You will get the name of the apparatus that helps find out if the Planet Mars was ever inhabited.

3.22	$\dfrac{4}{9}$	1	11x+4	4	3	2.25	-3	-2