



Name: _____

Date: _____

Order does not matter. Count the ordered ways, then divide.

- ① A coach picks 3 of 5 players to start the game. How many different groups are possible?

$$5 \times 4 \times 3 = 60$$

$$60 \div (3 \times 2 \times 1) = 10$$

- ② A reader takes 3 books from a pile of 7. How many different sets of books are possible?
- _____

- ③ A reader takes 3 books from a pile of 5. How many different sets of books are possible?
- _____

- ④ 3 toppings are picked from a list of 6. How many different pizzas are possible?
- _____

- ⑤ A reader takes 3 books from a pile of 10. How many different sets of books are possible?
- _____

- ⑥ 4 toppings are picked from a list of 10. How many different pizzas are possible?
- _____

- ⑦ A coach picks 2 of 8 players to start the game. How many different groups are possible?
- _____

- ⑧ A coach picks 4 of 6 players to start the game. How many different groups are possible?
- _____



Permutations and combinations · Combinations — Answer key



1. A coach picks 3 of 5 players to start the game. How many different groups are possible? $\rightarrow 5 \times 4 \times 3 = 60$, $60 \div (3 \times 2 \times 1) = 10$

2. A reader takes 3 books from a pile of 7. How many different sets of books are possible? $\rightarrow 7 \times 6 \times 5 = 210$, $210 \div (3 \times 2 \times 1) = 35$

3. A reader takes 3 books from a pile of 5. How many different sets of books are possible? $\rightarrow 5 \times 4 \times 3 = 60$, $60 \div (3 \times 2 \times 1) = 10$

4. 3 toppings are picked from a list of 6. How many different pizzas are possible? $\rightarrow 6 \times 5 \times 4 = 120$, $120 \div (3 \times 2 \times 1) = 20$

5. A reader takes 3 books from a pile of 10. How many different sets of books are possible? $\rightarrow 10 \times 9 \times 8 = 720$, $720 \div (3 \times 2 \times 1) = 120$

6. 4 toppings are picked from a list of 10. How many different pizzas are possible? $\rightarrow 10 \times 9 \times 8 \times 7 = 5040$, $5040 \div (4 \times 3 \times 2 \times 1) = 210$

7. A coach picks 2 of 8 players to start the game. How many different groups are possible? $\rightarrow 8 \times 7 = 56$, $56 \div (2 \times 1) = 28$

8. A coach picks 4 of 6 players to start the game. How many different groups are possible? $\rightarrow 6 \times 5 \times 4 \times 3 = 360$, $360 \div (4 \times 3 \times 2 \times 1) = 15$