

Antwoorden oefeningen combinatoriek

1.

- a. $12!$
- b. $\binom{12}{2}$
- c. $12 \cdot 11 \cdot 10 \cdot 9$

2.

- a. $\binom{7}{3}$
- b. 1
- c. $\binom{11}{9}$
- d. $\binom{5}{2} \cdot \binom{6}{3}$

3.

- a. $\binom{10}{3}$
- b. $\binom{12}{2} \cdot \binom{10}{1}$
- c. $\binom{22}{3}$

4.

- a. $\binom{6}{2} = \binom{6}{4}$
- b. $\binom{5}{2} = \binom{5}{3}$
- c. $\binom{6}{2} - 5$

5.

$$\binom{5}{2} x^2 = \binom{5}{3} x^2$$

6.

$$10 \times 9 \times 8$$

7.

- a. $4!$
- b. $4!$

8.

$$20 \times 19 \times 18 \times 17$$

9.

$$\binom{13}{4} \cdot 2^9 \cdot 1^4$$

10

$$\binom{20}{3} \cdot \binom{10}{2}$$

11.

a 11^{20}

b $\binom{20}{6} \cdot 6^6 \cdot 5^{14}$

12.

$$\binom{10}{3} \cdot \binom{7}{4} \cdot \binom{5}{2}$$

13.

$$\frac{1}{2} \cdot (11 \times 11 - 11)$$

14.

$$4x(1+2x^3)x^4 = 112$$

15.

$$\binom{10}{7} \cdot 3^3 \cdot 1^7$$

16.

$$\binom{3}{1} \cdot \binom{4}{1} \cdot \binom{2}{1}$$

17.

$$\frac{1}{2} \cdot 60 \cdot 59 = 1770$$

18.

$$\binom{6}{3} = 20$$

19.

a. $\frac{1}{2} \cdot \binom{8}{4}$

b. $\binom{8}{2} = \binom{8}{6}$

20.

$$10 \times 9 \times 8$$

21.

$$\binom{11}{4} = \binom{11}{7}$$

22.

a 6^3

b 10

23.

a $5!$

b $\frac{4!}{2!}$

24.

$$\binom{5}{2}$$

25.

$$n=20$$

26.

$$10 + 9 \times 9 + 9 \times 9 \times 8 = 789$$

27.

$$\binom{5}{3}$$

28.

$$x^7 - 7x^6 + 21x^5 - 35x^4 + 35x^3 - 21x^2 + 7x - 1$$

29.

$$(1+1)^n = 2^n$$

30.

$$50 \times 49$$

31.

$$\binom{6}{5} \cdot \binom{35}{1}$$

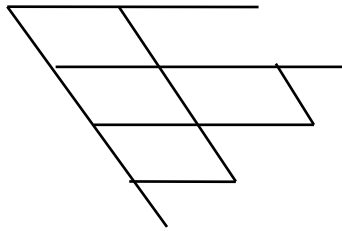
32.

$$2$$

33.

$$a^{10} - 5a^8 + 10a^6 - 10a^4 + 5a^2 - 1$$

34.



35.

$$1 \times 3 + 1 + 1 \times 3 = 7$$

36.

$$\frac{4!}{2!}$$

37.

$$2^{10}$$

38.

$$\frac{5!}{2!}$$

39.

$$\binom{9}{2} + \binom{9}{7} = 72$$

40.

$$6!$$

41.

$$\frac{10!}{3! \cdot 2! \cdot 2! \cdot 2!} = 75600$$

42.

$$36$$

43.

$$\binom{9}{4} = \binom{9}{5} = 126$$

44.

$$\binom{16}{3} \cdot \binom{14}{2}$$

45

a. 10^9

b. $\binom{19}{6} \cdot 5^6 \cdot 5^{13}$

46

$$\binom{10}{4} \cdot \binom{7}{2} \cdot \binom{6}{3}$$

47

$$(9 \times 9 - 9) : 2 = 36$$

48

$$\binom{12}{8} \cdot 1^8 \cdot 4^4$$

49

a. $\binom{10}{5}$

b. $\binom{10}{6} = \binom{10}{4}$

50.

$$10 \times 9 \times 8 \times 7$$

51

$$\binom{6}{5} \cdot \binom{35}{1}$$

52

$$\binom{7}{2} + \binom{7}{5} = 42$$

53

$$\binom{9}{6}$$

54

$$3 \cdot 4 \cdot 6 \cdot 2$$

55

$$2, 6 \text{ en } 12$$

56

$$\frac{10!}{2! \cdot 2! \cdot 2! \cdot 3!}$$

57

$$\binom{50}{2} \cdot 2 = 40 \times 40 - 40$$

58

$$\binom{24}{2}$$

59

$$\binom{24}{2}$$

60

6

61

$$\binom{5}{2} \cdot \binom{2}{1} \cdot \binom{3}{0}$$

62

$$\frac{5!}{2!}$$

63

$$\binom{13}{11} \cdot 4$$

64

$$\binom{30}{11} \cdot \binom{19}{7} \cdot \binom{12}{12}$$

65

$$\binom{5}{3} = \binom{5}{2}$$

66

$$\binom{100}{3}$$

67

$$\frac{\binom{N-K}{2} \cdot \binom{K}{1}}{\binom{N}{3}}$$

68

$$\frac{8 \cdot 7}{2} + 8 = 36 = \frac{8 \times 8 - 8}{2} + 8$$

69

a) $\frac{4}{36}$ b) 20

70

$$P(\text{Mark}) = \frac{\binom{1}{1} \cdot \binom{6}{1} + \binom{2}{2}}{\binom{12}{2}}$$

$$P(\text{Stan}) = \frac{\binom{1}{1} \cdot \binom{6}{2} + \binom{2}{2} \cdot \binom{6}{1} + \binom{3}{2} \cdot \binom{2}{1}}{\binom{12}{3}}$$

71

$$\frac{\binom{6}{2} \binom{35}{4}}{\binom{1}{6}}$$

72

$$26 \times 25 \times 24 \times 23 \times 10 \times 10$$

73

$$\binom{13}{2} \cdot \binom{39}{1}$$

74

75

$$\begin{array}{l} \mathbf{a} \quad 14 \\ \mathbf{b} \quad 3 \end{array}$$

76

$$2^{10} - 1 - 10$$

77

$$x^5 + 5x^4 + 10x^3 + 10x^2 + 5x + 1$$

78

$$8952$$

79

$$\frac{5!}{2!}$$