

Zerlegen Sie die folgenden Terme mittels binomischer Formeln in Faktoren!

1 $25x^2 + 20x + 4 =$

2 $9a^2 - 6ab + b^2 =$

3 $a^4 - b^{10} =$

4 $x^2 + 14x + 49 =$

5 $36a^2b^2 + 12ab + 1 =$

6 $4a^2 + 4ab + b^2 =$

7 $a^2 - 4x^2 =$

8 $25b^2 - 10b + 1 =$

9 $49a^2 - 112ap + 64p^2 =$

10 $x^6 - 9 =$

11 $121z^2 - 66yz + 9y^2 =$

12 $q^2r^2 + 2qrs + s^2 =$

13 $a^4 + 6a^2 + 9 =$

14 $x^4 - 16 =$

15 $98a^2 - 72b^2 =$

16 $3a^2 - 75 =$

17 $4a^6 - 4a^3 + 1 =$

18 $3x^3 + 30x^2 + 75x =$

19 $a^4 - 2a^2 + 1 =$

20 $p^2 - 5pq + 4q^2 =$

Die Quadrate liefern die Zahlen für die Klammern.

Kontrollieren Sie immer das mittlere Glied!

- 1 $25x^2 + 20x + 4 = (5x + 2)^2$ $5x \cdot 2 \cdot 2 = 20x$
- 2 $9a^2 - 6ab + b^2 = (3a - b)^2$ $3a \cdot (-b) \cdot 2 = -6ab$
- 3 $a^4 - b^{10} = (a^2 - b^5)(a^2 + b^5)$
- 4 $x^2 + 14x + 49 = (x + 7)^2$ $x \cdot 7 \cdot 2 = 14x$
- 5 $36a^2b^2 + 12ab + 1 = (6ab + 1)^2$ $6ab \cdot 1 \cdot 2 = 12ab$
- 6 $4a^2 + 4ab + b^2 = (2a + b)^2$ $2a \cdot b \cdot 2 = 4ab$
- 7 $a^2 - 4x^2 = (a + 2x)(a - 2x)$
- 8 $25b^2 - 10b + 1 = (5b - 1)^2$ $5b \cdot (-1) \cdot 2 = -10b$
- 9 $49a^2 - 112ap + 64p^2 = (7a - 8p)^2$ $7a \cdot (-8p) \cdot 2 = -112ap$
- 10 $x^6 - 9 = (x^3 + 3)(x^3 - 3)$
- 11 $121z^2 - 66yz + 9y^2 = (11z - 3y)^2$ $11z \cdot (-3y) \cdot 2 = -66yz$
- 12 $q^2r^2 + 2qrs + s^2 = (qr + s)^2$ $qr \cdot s \cdot 2 = 2qrs$
- 13 $a^4 + 6a^2 + 9 = (a^2 + 3)^2$ $a^2 \cdot 3 \cdot 2 = 6a^2$
- 14 $x^4 - 16 = (x^2 + 4)(x^2 - 4) = (x^2 + 4)(x + 2)(x - 2)$
- 15 $98a^2 - 72b^2 = 2(49a^2 - 36b^2) = 2(7a + 6b)(7a - 6b)$
- 16 $3a^2 - 75 = 3(a^2 - 25) = 3(a + 5)(a - 5)$
- 17 $4a^6 - 4a^3 + 1 = (2a^3 - 1)^2$ $2a^3 \cdot (-1) \cdot 2 = -6a^3$
- 18 $3x^3 + 30x^2 + 75x = 3x(x^2 + 10x + 25) = 3x(x + 5)^2$
- 19 $a^4 - 2a^2 + 1 = (a^2 - 1)^2 = [(a + 1)(a - 1)]^2 = (a + 1)^2(a - 1)^2$
- 20 $p^2 - 5pq + 4q^2 =$ ist keine binomische Formel!
wäre zerlegbar in: $(p - 4q)(p - q)$