

Vektoren addieren, subtrahieren und vervielfachen

Stufe 3: Linearkombinationen

Name: _____

Datum: _____

Rechne komponentenweise. Die Vektoren sind in Zeilenschreibweise (x | y | z) angegeben.

1) $-3 \cdot (-2 | 0 | 2) - 2 \cdot (1 | 4 | -2) =$ _____

2) $2 \cdot (4 | 4 | 0) + 3 \cdot (-5 | -1 | -5) =$ _____

3) $-2 \cdot (-5 | 4 | -1) + 2 \cdot (2 | 2 | 4) =$ _____

4) $3 \cdot (-5 | -4 | -4) + 4 \cdot (-5 | -5 | 4) =$ _____

5) $3 \cdot (5 | 3 | -5) - 3 \cdot (-4 | -3 | 1) =$ _____

6) $-3 \cdot (1 | -5 | -4) - 2 \cdot (2 | -5 | -5) =$ _____

7) $3 \cdot (4 | -2 | 5) - 3 \cdot (-1 | -4 | 0) =$ _____

8) $4 \cdot (-2 | -4 | 4) + 2 \cdot (-4 | 2 | 5) =$ _____

9) $-2 \cdot (4 | -3 | 4) + 2 \cdot (-3 | -2 | 3) =$ _____

10) $4 \cdot (-3 | -2 | 2) - 2 \cdot (0 | -1 | -1) =$ _____

11) $-3 \cdot (-1 | 0 | -2) + 4 \cdot (2 | -4 | 3) =$ _____

12) $-2 \cdot (-4 | 3 | -2) + 2 \cdot (-2 | 0 | 1) =$ _____

Lösungen: Vektoren addieren, subtrahieren und vervielfachen

Stufe 3: Linearkombinationen

- 1) $-3 \cdot (-2 \mid 0 \mid 2) - 2 \cdot (1 \mid 4 \mid -2) = (4 \mid -8 \mid -2)$
- 2) $2 \cdot (4 \mid 4 \mid 0) + 3 \cdot (-5 \mid -1 \mid -5) = (-7 \mid 5 \mid -15)$
- 3) $-2 \cdot (-5 \mid 4 \mid -1) + 2 \cdot (2 \mid 2 \mid 4) = (14 \mid -4 \mid 10)$
- 4) $3 \cdot (-5 \mid -4 \mid -4) + 4 \cdot (-5 \mid -5 \mid 4) = (-35 \mid -32 \mid 4)$
- 5) $3 \cdot (5 \mid 3 \mid -5) - 3 \cdot (-4 \mid -3 \mid 1) = (27 \mid 18 \mid -18)$
- 6) $-3 \cdot (1 \mid -5 \mid -4) - 2 \cdot (2 \mid -5 \mid -5) = (-7 \mid 25 \mid 22)$
- 7) $3 \cdot (4 \mid -2 \mid 5) - 3 \cdot (-1 \mid -4 \mid 0) = (15 \mid 6 \mid 15)$
- 8) $4 \cdot (-2 \mid -4 \mid 4) + 2 \cdot (-4 \mid 2 \mid 5) = (-16 \mid -12 \mid 26)$
- 9) $-2 \cdot (4 \mid -3 \mid 4) + 2 \cdot (-3 \mid -2 \mid 3) = (-14 \mid 2 \mid -2)$
- 10) $4 \cdot (-3 \mid -2 \mid 2) - 2 \cdot (0 \mid -1 \mid -1) = (-12 \mid -6 \mid 10)$
- 11) $-3 \cdot (-1 \mid 0 \mid -2) + 4 \cdot (2 \mid -4 \mid 3) = (11 \mid -16 \mid 18)$
- 12) $-2 \cdot (-4 \mid 3 \mid -2) + 2 \cdot (-2 \mid 0 \mid 1) = (4 \mid -6 \mid 6)$