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|  | IV Terme mit mehreren Variablen, Check-out |  |  |
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Check-out Kapitel IV

Schätze dich mithilfe der Checkliste ein.

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|  | Checkliste |  |  |  | Lerntipps | zum Nacharbeiten |
| 1. | Ich kann Terme mit mehreren Variablen vereinfachen und Termwerte berechnen. | 🞎 | 🞎 | 🞎 | Beispiel 1 auf Seite 104 | Seite 116: A. 1, 2 und 3  Seite 117: A. 12 und 13  Seite 123: Runde 1 A. 1 und 4  Seite 123: Runde 2 A. 2 |
| 2. | Ich kann Terme mit mehreren Variablen aufstellen und Berechnungen durchführen. | 🞎 | 🞎 | 🞎 | Beispiel 2 auf Seite 104 | Seite 116: A. 9  Seite 117: A. 10 und 11  Seite 123: Runde 1 A. 3 und 5 a)  Seite 123: Runde 2 A. 5 a) |
| 3. | Ich kann Summen ausmultiplizieren und vereinfachen. | 🞎 | 🞎 | 🞎 | Beispiel auf  Seite 109 | Seite 116: A. 4 und 7  Seite 118: A. 16 und 19  Seite 123: Runde 1 A. 5 b)  und 6  Seite 123: Runde 2 A. 4 und  5 b) |
| 4. | Ich kann binomische Formeln anwenden, um Klammern aufzulösen bzw. Terme als Produkt zu schreiben. | 🞎 | 🞎 | 🞎 | Beispiel 1 und 3 auf Seite 113 | Seite 116: A. 5 und 6  Seite 117: A. 15  Seite 118: A. 17, 18 und 20  Seite 123: Runde 1 A. 2  Seite 123: Runde 2 A. 3 und 6 |
| 5. | Ich kann die binomischen Formeln als Rechenstrategie anwenden. | 🞎 | 🞎 | 🞎 | Beispiel 2 auf Seite 113 | Seite 116: A. 8  Seite 123: Runde 2 A. 1 |

Überprüfe deine Einschätzung.

Zu 1. Terme vereinfachen und Termwerte berechnen

Vereinfache den Term und berechne seinen Wert für die angegebenen Variablenwerte.

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| a)  =  = |  | b)  =  = |  | c)  =  = |

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| Variablen | | | vereinfachte Terme | | |
| r | s | t | a) | b) | c) |
| 3 | 2 | − 1 |  |  |  |
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|  | IV Terme mit mehreren Variablen, Check-out |  |  |
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Zu 2. Terme aufstellen und Berechnungen durchführen

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| a) Gib einen Term für den Flächeninhalt und einen Term für den Umfang der Fig. 1 auf. Vereinfache die Terme so weit wie möglich.  b) Berechne den Flächeninhalt und den Umfang, wenn und ist.  c) Das Volumen des Quaders in Fig. 2 ist 135 cm3 und die Breite a ist 3 cm. Berechne die Höhe b des Quaders und seinen Oberflächeninhalt O. |  | I:\Klett_WORD\733482_und_733484_LS8 NW\733482_Schmuckelemente\Kapitel 4\SE96733482_K04_S061_01.png |

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Zu 3. Summen ausmultiplizieren und vereinfachen

a) Multipliziere aus und fasse so weit wie möglich zusammen.

(1) (2) (3)

b) Im Zuge einer Flurbereinigung soll das quadratische Feld von Bauer Marks mit einer Seitenlänge von x einerseits um 10 m verkürzt, dafür jedoch andererseits um 15 m verlängert werden.   
Stelle jeweils einen Term für den Flächeninhalt des ursprünglichen und des neuen Grundstücks auf. Vergleiche anschließend die Flächeninhalte, wenn das ursprüngliche Grundstück einen Flächeninhalt von 625 m2 bzw. 4 ha hatte.

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|  | IV Terme mit mehreren Variablen, Check-out |  |  |
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Zu 4. Binomische Formeln anwenden (Klammern auflösen und Terme als Produkt schreiben)

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| a) Löse die Klammer mithilfe einer binomischen Formel auf und vereinfache den Term.  (1) (2) (3)  b) Schreibe als Produkt, indem du eine binomische Formel „rückwärts“ anwendest.  (1) (2) (3)  (4) (5) (6)  c) Begründe mithilfe der Figur, dass die Terme und 4 a b gleichwertig sind, und zeige dies rechnerisch. |  | I:\Klett_WORD\733482_LS8 NW\733482_Schmuckelemente\Kapitel 4\SE96733482_K04_S062_01.png |

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Zu 5. Binomische Formeln als Rechenstrategie anwenden

Berechne mithilfe der binomischen Formeln.

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| a) |  | b) |  | c) |

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|  | IV Terme mit mehreren Variablen, Check-out | Lösungen |  |
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Check-out Kapitel IV, S 67 – 69

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| 1 a) |  | b) |  | c) |

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| Variablen | | | vereinfachte Terme | | |
| r | s | t | a) | b) | c) |
| 3 | 2 | − 1 |  |  |  |
| − 1,5 | 7 | − 0,5 |  |  |  |
|  | 1 |  |  |  |  |

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| 2 a)      b)  c) |  |  |

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| 3 a) (1) |  | (2) |  | (3) |

b) x: Seitenlänge des ursprünglichen Quadrats

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Beim 625 m2 großen Feld ist das neue Feld mit 600 m2 kleiner, beim 4 ha großen Feld ist das neue Feld mit

40 850 m2 größer.

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| 4 a) (1) |  | (2) |  | (3) |

b) (1) (2)

(3) (4)

(5) (6)

c) Wenn man von dem Flächeninhalt des gesamten Quadrats den Flächeninhalt des grauen Quadrats subtrahiert, bleibt die Fläche der vier weißen Rechtecke übrig, diese haben jeweils einen Flächeninhalt von , also insgesamt .

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| 5 a) |  | b) |  | c) |