**Addition und Subtraktion von Termen mit Variablen**

![Ein Bild, das Uhr, Raum enthält.

Automatisch generierte Beschreibung]()

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| Ein Bild, das Zeichnung, Licht enthält.  Automatisch generierte Beschreibung | 1. Schauen Sie das erste Video an und folgen Sie den Anweisungen. 2. SendenÜbertragen Sie auf dieses Arbeitsblatt nach Aufforderung im Video die Regeln. 3. Bearbeiten Sie die anschließende Aufgabe. |

– (– ) ergibt + – (+ ) ergibt –

+ (+ ) ergibt + + (– ) ergibt –

**Regeln:**

**Beispiel:**

5a – (– 4a) = 5a + 4a = 9a

**Aufgabe:** Fassen Sie zusammen.

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|  |  |  |  |  |  | – 5b – (– 5b) = – 5b + 5b = 0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Gleichartige Terme lassen sich zusammenfassen, verschiedenartige nicht.

**Merke:**

**Beispiel:**

6x – (–8y) + 11x = 6x + 8y + 11x = 6x + 11x + 8y = 17x + 8y

**Aufgabe:** Sortieren Sie zuerst um und fassen Sie dann zusammen.

– 3x – (+2y) – 9x + (– 3x) – (7y) = – 3x – 2y – 9x – 3x – 7y

= – 3x – 9x – 3x – 2y – 7y

= – 15x – 9y

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**Merke:**

Ungleichnamige Brüche werden addiert/subtrahiert, indem man sie gleichnamig macht.

**Beispiel:**

*Hauptnenner: 14*

**Aufgabe:** Suchen Sie den Hauptnenner und vereinfachen Sie dann den Term.

Hauptnenner: 10

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Ungleichnamige Brüche werden multipliziert, indem man Zähler mit Zähler und Nenner mit Nenner multipliziert.

**Merke:**

**Beispiel:**

*Hauptnenner: 12*

**Aufgabe:** Fassen Sie dann den Term so weit wie möglich zusammen.

Hauptnenner: 20

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**Auflösen von Klammern**

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| Ein Bild, das Zeichnung, Licht enthält.  Automatisch generierte Beschreibung | 1. Schauen Sie das zweite Video an und folgen Sie den Anweisungen. 2. SendenÜbertragen Sie auf dieses Arbeitsblatt nach Aufforderung im Video die Regeln.   Bearbeiten Sie die anschließende Aufgabe. |

![Ein Bild, das Uhr, Schild enthält.

Automatisch generierte Beschreibung]()

Steht vor der Klammer ein Pluszeichen, so kann man die Klammer weglassen.

Steht vor einer Klammer ein Minuszeichen, so kann man die Klammer weglassen, wenn man alle Zeichen in der Klammer umdreht.

**Merke:**

**Beispiel:**

(3x – 6y) – (2x – 5y) = 3x – 6y – 2x + 5y = 3x – 2x – 6y + 5y = 1x – 1y

**Aufgabe:** Lösen Sie die Klammern auf und fassen Sie zusammen.

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Kommt eine Klammer in einer Klammer vor, so löst man zuerst die innere, dann die äußere Klammer auf.

**Merke:**

**Beispiel:**

[a – ( b + 2c) ] – [– ( 5a + 3b – c ) + 2a] = [a – b – 2c ] – [– 5a – 3b + c + 2a]

= a – b – 2c + 5a + 3b – c – 2a

= a + 5a – 2a – b + 3b – 2c – c = 6a + 2b – 3c

**Aufgabe:** Lösen Sie die Klammern auf und fassen Sie zusammen.

– [ 3x – (2y – 9x) ] + [ – 3x – (7y – 2x) ] = – [ 3x – 2y + 9x ] + [ – 3x – 7y + 2x ]

= – 3x + 2y – 9x – 3x – 7y + 2x

= – 3x – 9x – 3x + 2x + 2y – 7y = – 13x – 5y

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**Multiplikation von Summen**

Eine Variable wird mit einer Summe multipliziert, indem man die Variable mit jedem Summanden multipliziert.

a ( b + c ) = ab + ac

**Merke:**

**Beispiel:**

(2a – 4b) (– 5) = 2a (– 5) – 4b (– 5) = – 10a + 20b

**Aufgabe:** Multiplizieren Sie aus und fassen Sie soweit wie möglich zusammen.

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