

6. Klammere einen gemeinsamen Faktor aus.

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|--|---|--|---|--|
| a) $5x + 5y$
$1,2a + 1,2b$
$\frac{7}{3}r + \frac{7}{3}s$
$8x - 8y$
$3,2u - 3,2v$ | b) $8a + 8bc$
$5xy - 5z$
$2,1cd + 2,1e^2$
$1,5 - 1,5z$
$\frac{1}{2}x^2 + \frac{1}{2}$ | c) $5x + xy$
$7a - ab$
$ab + a^2$
$ab - ac$
$u^2 - uv$ | d) $x + 3xy$
$a^2 - 4ab$
$6xy - 7yz$
$x^2y + 1,5y^2$
$\frac{2}{3}uv - \frac{1}{5}u$ | e) $\frac{3}{7}y - \frac{3}{7}z$
$7u + 7$
$2,4x + x^2$
$u^2 + u$
$5xy - 6xz$ |
|--|---|--|---|--|

7. Klammere so weit wie möglich aus.

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|---|---|---|--|
| a) $7xy + 7xz$
$0,5a^2 - 0,5ab$
$\frac{3}{5}cd - \frac{3}{5}c$
$12xy + xyz$
$5a^2b - 3ab^2$ | b) $3ab + 12bc$
$18xy - 9yz$
$24uv + 36vw$
$15a^2 - 25ab$
$24xy^2 + 18yz^2$ | c) $20abc + 24ab$
$45a^2b - 36ab^2$
$48xyz - 72yz$
$24u^3v^2 + 18u^2v^2$
$\frac{3}{10}x^2 - \frac{9}{10}xy$ | d) $ax + bx + cx$
$3a^2 + 7ab - 8ab^2$
$44ay^2 - 55by + 66cy^2$
$10u^2 - 25uv - 35u^3v^2$
$12a^3bx^2 - 30abx - 6ab^2x^2$ |
|---|---|---|--|

1. a) $-(4 + a)$ b) $-(a + b)$ c) $-(3x + 7y)$ d) $-(3ab + 11cd)$ e) $-(4a + 5b - 7c)$
 $-(b - 3)$ $-(x - y)$ $-(12u - 13v)$ $-(8a^2 - 13b^2)$ $-(17x - 9y - 12z)$
 $-(-x + 5)$ $-(-r + s)$ $-(-5a + 3b)$ $-(-7x^2 + 8xy)$ $-(-8r + 9s - 6t)$
 $-(-a + 7)$ $-(-c - d)$ $-(-2c - 4d)$ $-(-6rs - 9r^2)$ $-(-4c - 5d - 7e)$

2. a) $x - (y + z)$ b) $4a - (a - b)$ c) $9x - (4y + 5x)$ d) $12 - (4 - x + y)$
 $a - (b - c)$ $7x - (-x + 3y)$ $7a - (12a - 6b)$ $a - (4a + b - 3c)$
 $z - (6 - y)$ $9u - (-u - v)$ $11r - (-5r + 8s)$ $13x - (-y + 4x + 7)$
 $r - (-s - t)$ $c - (8 + 3c)$ $17u - (-7u + 3v)$ $8r - (4s - 7t - 5r)$
 $x - (-7 + y)$ $6r - (5s - 8r)$ $23c - (-9d + 8c)$ $29c - (-7d - 3d - 5e)$

3. a) $(x - y) - (x + y)$ b) $(5 - x) - (x - 7)$ c) $(9x - 4y) - (5x + 8y)$
 $(r + s) - (r - s)$ $(2a - 4) - (3a + 7)$ $(21a + 13b) - (-5a + 7b)$
 $(c - d) - (c - d)$ $-(8 - s) + (s - 8)$ $-(4,8r + 2,4s) + (1,6s - 2,7r)$
 $(x - y) - (-x - y)$ $-(4x - 7) - (10 - 3x)$ $(\frac{3}{4}u - \frac{4}{5}v) - (-\frac{1}{2}u - \frac{6}{5}v)$

4. Löse erst die Klammern auf und fasse dann zusammen.

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|--|---|
| a) $75x - (18x - 9y) - (3y - 4x)$ | d) $6,4a + (2,6b - 3,8c) - (1,9b - 5,3c + 2,5a)$ |
| b) $45a + (41a + 39b) - (8b + 52a)$ | e) $8,7a^2 - (5,5b^2 - 1,3a^2) + (9,5b^2 + 7,6c^2)$ |
| c) $72u - (26v - 18u) - (56u - 71v)$ | f) $(50x + 69y) - (60y + 37x) + (53x - 9y)$ |
| g) $(58a + 83b) - (43a - 37b) - (67b + 100a)$ | |
| h) $(\frac{1}{4}u + \frac{1}{2}v + \frac{1}{8}w) + (3\frac{1}{5}u - \frac{2}{5}v) - (\frac{3}{4}u - 5\frac{1}{6}w)$ | |
| i) $(21,6a + 19,7b) - (5,1c - 9,7b) - (10,4a - 11,1b - 14,9c)$ | |
| j) $(8,5x + 10,7y + 21,4z) - (3,6x - 0,4y - 9,7z) - (0,1x - 0,9y - 3,1z)$ | |
| k) $(7,5r - 4,3s - 9,1t) - (-5,2s + 3,8r - 2,4t) - (8,7t - 1,9s + 6,6r)$ | |
| l) $(\frac{3}{4}a + \frac{2}{3}b - \frac{4}{5}c) + (\frac{1}{3}b - \frac{5}{4}a + \frac{3}{5}c) - (-\frac{1}{5}c - \frac{5}{3}b - \frac{7}{4}a)$ | |

1. a) $-a + 3$; $x - 5$; $a - 7$
b) $-a - b$; $-x + y$; $r - s$; $c + d$
c) $-3x - 7y$; $-12u + 13v$; $5a - 3b$; $2c + 4d$
d) $8 + x - y$; $-3a - b + 3c$; $9x + y - 7$; $13r - 4s + 7t$
e) $4x - 4y$; $-5a + 6b - 8s$; $24u - 3v$; $15c + 9d$
f) $3a + b$; $8x - 3y$; $10u + v$; $-8 - 2c$; $14r - 5s$
g) $x - y + z$; $a - b + c$; $z - 6 + y$; $r + s + t$; $x + 7 - y$
h) $3a + b$; $8x - 3y$; $10u + v$; $-8 - 2c$; $14r - 5s$
i) $4x - 4y$; $-5a + 6b - 8s$; $24u - 3v$; $15c + 9d$
j) $8 + x - y$; $-3a - b + 3c$; $9x + y - 7$; $13r - 4s + 7t$
k) $3a + b$; $8x - 3y$; $10u + v$; $-8 - 2c$; $14r - 5s$
l) $3a + b$; $8x - 3y$; $10u + v$; $-8 - 2c$; $14r - 5s$
2. a) $-a - b + c$; $z - 6 + y$; $r + s + t$; $x + 7 - y$
b) $3a + b$; $8x - 3y$; $10u + v$; $-8 - 2c$; $14r - 5s$
c) $4x - 4y$; $-5a + 6b - 8s$; $24u - 3v$; $15c + 9d$
d) $8 + x - y$; $-3a - b + 3c$; $9x + y - 7$; $13r - 4s + 7t$
e) $3a + b$; $8x - 3y$; $10u + v$; $-8 - 2c$; $14r - 5s$
f) $3a + b$; $8x - 3y$; $10u + v$; $-8 - 2c$; $14r - 5s$
g) $x - y + z$; $a - b + c$; $z - 6 + y$; $r + s + t$; $x + 7 - y$
h) $3a + b$; $8x - 3y$; $10u + v$; $-8 - 2c$; $14r - 5s$
i) $4x - 4y$; $-5a + 6b - 8s$; $24u - 3v$; $15c + 9d$
j) $8 + x - y$; $-3a - b + 3c$; $9x + y - 7$; $13r - 4s + 7t$
k) $3a + b$; $8x - 3y$; $10u + v$; $-8 - 2c$; $14r - 5s$
l) $3a + b$; $8x - 3y$; $10u + v$; $-8 - 2c$; $14r - 5s$
3. a) $-2y$; $2x$ b) $12 - 2x$; $-a - 11$; $2s - 16$; $-x - 3$ c) $4x - 12y$; $26a + 6b$; $-7,5r - 0,8s$; $1\frac{1}{4}u + \frac{3}{8}v$
d) $61x + 6y$ e) $3,9a + 0,7b + 1,5c$ f) $-85a + 53b$ g) $11,2a + 40,5b + 9,8c$
h) $10a^2 + 4b^2 + 7,6c^2$ i) $1\frac{1}{2}u + \frac{1}{10}v + 5\frac{1}{2}w$ j) $4,8x + 12y + 34,2z$ k) $-2,9r + 2,8s - 15,4t$
l) $34u + 45v$ m) $66x$ n) $3,9a + 0,7b + 1,5c$ o) $11,2a + 40,5b + 9,8c$
4. a) $x(a + b + c)$; $a(3a + 7b - 8b^2)$; $11y(4ay - 5b + 6cy)$; $5u(2u - 5v - 7u^2v^2)$; $6abx(2a^2x - 5 - 5 - bx)$
b) $3b(a + 4c)$; $9y(2x - z)$; $12v(2u + 3w)$; $5a(3a - 5b)$; $6y(4xy + 3z^2)$
c) $4ab(5c + 6)$; $9ab(5a - 4b)$; $24yz(2x - z)$; $24yz(2x - z)$; $6u^2v^2(4u + 3)$; $\frac{10}{3}x(x - 3y)$
d) $x(a + b + c)$; $a(3a + 7b - 8b^2)$; $11y(4ay - 5b + 6cy)$; $5u(2u - 5v - 7u^2v^2)$; $6abx(2a^2x - 5 - 5 - bx)$
e) $\frac{1}{2}(y - z)$; $7(u + 1)$; $x(2,4 + x)$; $u(u + 1)$; $x(5y - 6z)$
f) $x(1 + 3y)$; $a(a - 4b)$; $y(x^2 - 7z)$; $y(x^2 + 1,5y)$; $u(\frac{3}{8}v - \frac{3}{2})$
g) $x(5 + y)$; $a(7 - b)$; $a(b + a)$; $a(b - c)$; $u(u - v)$
h) $8(a + bc)$; $5(xy - z)$; $2,1(cd + e^2)$; $1,5(1 - z)$; $\frac{3}{4}(x^2 + 1)$
i) $8(a + bc)$; $5(xy - z)$; $2,1(cd + e^2)$; $1,5(1 - z)$; $\frac{3}{4}(x^2 + 1)$
j) $8(a + bc)$; $5(xy - z)$; $2,1(cd + e^2)$; $1,5(1 - z)$; $\frac{3}{4}(x^2 + 1)$
k) $8(a + bc)$; $5(xy - z)$; $2,1(cd + e^2)$; $1,5(1 - z)$; $\frac{3}{4}(x^2 + 1)$
l) $8(a + bc)$; $5(xy - z)$; $2,1(cd + e^2)$; $1,5(1 - z)$; $\frac{3}{4}(x^2 + 1)$

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| a) $5x + 5y$ | b) $8a + 8bc$ | c) $5x + xy$ | d) $x + 3xy$ | e) $\frac{3}{7}y - \frac{3}{7}z$ |
| $1,2a + 1,2b$ | $5xy - 5z$ | $7a - ab$ | $a^2 - 4ab$ | $7u + 7$ |
| $\frac{7}{3}r + \frac{7}{3}s$ | $2,1cd + 2,1e^2$ | $ab + a^2$ | $6xy - 7yz$ | $2,4x + x^2$ |
| $8x - 8y$ | $1,5 - 1,5z$ | $ab - ac$ | $x^2y + 1,5y^2$ | $u^2 + u$ |
| $3,2u - 3,2v$ | $\frac{1}{2}x^2 + \frac{1}{2}$ | $u^2 - uv$ | $\frac{2}{3}uv - \frac{1}{5}u$ | $5xy - 6xz$ |

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| a) $7xy + 7xz$ | b) $3ab + 12bc$ | c) $20abc + 24ab$ | d) $ax + bx + cx$ |
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| $12xy + xyz$ | $15a^2 - 25ab$ | $24u^3v^2 + 18u^2v^2$ | $10u^2 - 25uv - 35u^3v^2$ |
| $5a^2b - 3ab^2$ | $24xy^2 + 18yz^2$ | $\frac{3}{10}x^2 - \frac{9}{10}xy$ | $12a^3bx^2 - 30abx - 6ab^2x^2$ |

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| k) $(7,5r - 4,3s - 9,1t) - (-5,2s + 3,8r - 2,4t) - (8,7t - 1,9s + 6,6r)$ | |
| l) $(\frac{3}{4}a + \frac{2}{3}b - \frac{4}{5}c) + (\frac{1}{3}b - \frac{5}{4}a + \frac{3}{5}c) - (-\frac{1}{5}c - \frac{5}{3}b - \frac{7}{4}a)$ | |

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2. a) $-2y$; $2x$ b) $12 - 2x$; $-a - 11$; $2s - 16$; $-x - 3$ c) $4x - 12y$; $26a + 6b$; $-7,5r - 0,8s$; $1\frac{1}{4}u + \frac{3}{8}v$
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h) $10a^2 + 4b^2 + 7,6c^2$ i) $1\frac{1}{10}u + \frac{1}{10}v + 5\frac{7}{10}w$ j) $4,8x + 12y + 34,2z$
k) $-2,9r + 2,8s - 15,4t$ l) $\frac{2}{5}a + \frac{3}{8}b$
3. a) $x(a + b + c)$; $a(3a + 7b - 8b^2)$; $11y(4ay - 5b + 6cy)$; $5u(2u - 5v - 7u^2v^2)$; $6abx(2a^2x - 5 - bx)$
b) $3b(a + 4c)$; $9y(2x - z)$; $12v(2u + 3w)$; $5a(3a - 5b)$; $6y(4xy + 3z^2)$
c) $4ab(5c + 6)$; $9ab(5a - 4b)$; $24yz(2x - z)$; $24yz(2x - z)$; $6u^2v^2(4u + 3)$; $\frac{10}{3}x(x - 3y)$
d) $x(a + b + c)$; $a(3a + 7b - 8b^2)$; $11y(4ay - 5b + 6cy)$; $5u(2u - 5v - 7u^2v^2)$; $6abx(2a^2x - 5 - bx)$
4. a) $61x + 6y$ b) $34a + 31b$ c) $34u + 45v$
d) $3,9a + 0,7b + 1,5c$ e) $10a^2 + 4b^2 + 7,6c^2$ f) $66x$
g) $-85a + 53b$ h) $1\frac{1}{10}u + \frac{1}{10}v + 5\frac{7}{10}w$ i) $11,2a + 40,5b + 9,8c$
j) $4,8x + 12y + 34,2z$ k) $-2,9r + 2,8s - 15,4t$ l) $\frac{2}{5}a + \frac{3}{8}b$