

Klammere jeweils den angegebenen Faktor aus

a) Faktor $6x^2$: $18x^2y + 30x^3z = 6 \cdot 3x \cdot x \cdot y + 6 \cdot 5 \cdot x \cdot x \cdot x \cdot z =$

b) Faktor $9a$: $45a^3b - 36ab^2 =$

c) Faktor $8uv$: $24u^2v - 8uv^2 =$

d) Faktor $(-4)cd$: $-28cd + 16c^2d =$

e) Faktor x^2y : $11x^2y - 9x^2y^2 =$

2. Klammere alle gemeinsamen Faktoren aus

Bsp: $48xy + 16x + 44x^3y = 4 \cdot 12xy + 4 \cdot 4x + 4 \cdot 11x \cdot x \cdot x \cdot y$
 $= 4x \cdot (12y + 4 + 11x^2y)$

a) $135v^2w^2 - 45vw^2 =$

b) $12ef^2 + 20e^2f - 24ef =$

c) $-16a^2b^3c^2 - 40a^3b^2c^2 + 56a^2b^2c^3 =$

d) $28a + 4(-2a + 2b) - 46b =$

e) $14mn - 10m \cdot (4n - 6) - 6n \cdot (8m - 10) =$

f) $36 + (6s - 3t) \cdot 5 - (18s - 3t + 12) \cdot 3 =$

g) $5xy - 8x - (5y - 7x) \cdot 2x =$

h) $(3x - 7) \cdot (12 + 8x) =$

i) $(6x^2y - 15xy^2) \cdot (-3y^2x - 4yx^2) =$

j) $\left(-\frac{3}{5}x + \frac{4}{9}y\right) \cdot \left(\frac{4}{5}x - \frac{1}{9}y\right) =$

Lösungen:

a) Faktor $6x^2$: $18x^2y + 30x^3z = 6 \cdot 3x \cdot x \cdot y + 6 \cdot 5 \cdot x \cdot x \cdot x \cdot z =$
 $= 6x^2(3y + 5xz)$

b) Faktor $9a$: $45a^3b - 36ab^2 = 9a(5ab - 4b^2)$

c) Faktor $8uv$: $24u^2v - 8uv^2 = 8uv(3u - v)$

d) Faktor $-4cd$: $-28cd + 16c^2d = -4cd(7 - 4c)$

e) Faktor x^2y : $11x^2y - 9x^2y^2 = x^2y(11 - 9y)$

2. Klammere alle gemeinsamen Faktoren aus

Bsp: $48xy + 16x + 44x^3y = 4 \cdot 12xy + 4 \cdot 4x + 4 \cdot 11x \cdot x \cdot x \cdot y$
 $= 4x \cdot (12y + 4 + 11x^2y)$

k) $135v^2w^2 - 45vw^2 = 45vw^2(3v - 1)$

l) $12ef^2 + 20e^2f - 24ef = 4ef(3f + 5e - 8)$

m) $-16a^2b^3c^2 - 40a^3b^2c^2 + 56a^2b^2c^3 = 8a^2b^2c^2(-2b - 5a + 7c)$

n) $28a + 4(-2a + 2b) - 46b = 28a - 8a + 8b = 20a + 8b = 2(10a + 4b)$

o) $14mn - 10m \cdot (4n - 6) - 6n \cdot (8m - 10) = 14mn - 40mn + 60m - 48nm + 60n$
 $= -74nm + 60m + 60n$
 $= 2(-37nm + 30n + 30m)$

p) $36 + (6s - 3t) \cdot 5 - (18s - 3t + 12) \cdot 3 = 36 + 30s - 15t - 54s + 9t - 36$
 $= -24s + 6t$
 $= -6(4s - t)$

q) $5xy - 8x - (5y - 7x) \cdot 2x = 5xy - 8x - 10xy + 14x^2 = 14x^2 - 8x - 5xy$
 $= x(14x - 8 - 5y)$

r) $(3x - 7) \cdot (12 + 8x) = 26x + 24x^2 - 84 - 56x = 24x^2 - 30x - 84 = 2(12x^2 - 15x - 42)$

s) $(6x^2y - 15xy^2) \cdot (-3y^2x - 4yx^2) = 18x^3y^3 - 24x^4y^2 + 45x^3y^4 + 60x^3y^3$
 $= 78x^3y^3 - 24x^4y^2 + 45x^2y^4$

t) $(-\frac{3}{5}x + \frac{4}{9}y) \cdot (\frac{4}{5}x - \frac{1}{9}y) = -\frac{12}{25}x^2 + \frac{3}{45}xy + \frac{16}{45}xy - \frac{4}{81}y^2 = -\frac{12}{25}x^2 + \frac{18}{45}xy - \frac{4}{81}y^2$
 $= -\frac{12}{25}x^2 + \frac{2}{3}xy - \frac{4}{81}y^2$