

Rechnen mit Termen

Dokumentnummer: DX1232

Fachgebiet: Terme

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Quelle: <http://www.edhelper.com>

Figure 1:

$$1. \quad 3x(3x^2 + 11x + 7)$$

$$9x^3 + 33x^2 + 21x$$

--> `3*x*(3*x**2+11*x+7),expand;`

$$(%o2) \quad 9x^3 + 33x^2 + 21x$$

Figure 2:

$$2. \quad (10x)(4x + 8)$$

$$40x^2 + 80x$$

--> `(10*x)*(4*x+8),expand;`

$$(%o3) \quad 40x^2 + 80x$$

Figure 3:

$$3. \quad (9x)(2x + 9)$$

$$18x^2 + 81x$$

--> `(9*x)*(2*x+9),expand;`

$$(%o4) \quad 18x^2 + 81x$$

Figure 4:

$$4. \quad \frac{5}{f} - \frac{4}{q}$$

$$\frac{5q - 4f}{qf}$$

$$\begin{aligned} & \text{--> } (5/f-4/q); \\ (\%05) & \frac{5}{f} - \frac{4}{q} \end{aligned}$$

$$\begin{aligned} & \text{--> } \%,ratsimp; \\ (\%06) & \frac{5q - 4f}{fq} \end{aligned}$$

Figure 5:

$$\begin{aligned} 5. & \frac{4c}{7} - \frac{7c-7}{14} \\ & \frac{c+7}{14} \end{aligned}$$

$$\begin{aligned} & \text{--> } (4*c)/7-(7*c-7)/14; \\ (\%07) & \frac{4c}{7} - \frac{7c-7}{14} \end{aligned}$$

$$\begin{aligned} & \text{--> } \%,ratsimp; \\ (\%08) & \frac{c+7}{14} \end{aligned}$$

Figure 6:

$$\begin{aligned} 6. & \frac{-3t+4}{3j} - \frac{2}{3t} \\ & \frac{-3t^2 + 4t - 2j}{3tj} \end{aligned}$$

$$\begin{aligned} & \text{--> } (-3*t+4)/(3*j)-2/(3*t); \\ (\%09) & \frac{4-3t}{3j} - \frac{2}{3t} \end{aligned}$$

$$\begin{aligned} & \text{--> } \%,ratsimp; \\ (\%10) & -\frac{3t^2 - 4t + 2j}{3jt} \end{aligned}$$

Figure 7:

$$7. [(19x + 5) + (6x + 20)] + [(14x + 5) - (4x + 18)]$$

$$35x + 12$$

```
--> ((19*x+5)+(6*x+20))+((14*x+5)-(4*x+18)),expand;
```

```
(%o11) 35 x + 12
```

Figure 8:

$$8. [(10x + 11)(7x + 12)] \times [(4x^7 - 9x^5 + 10x)(6x^2 - 10x - 8)]$$

$$1680x^{11} + 1928x^{10} - 10732x^9 - 15922x^8 + 11418x^7 + 26064x^6 + 13704x^5 + 4820x^4 - 17380x^3 - 28960x^2 - 10560x$$

```
--> ((10*x+11)*(7*x+12))*((4*x**7-9*x**5+10*x)*(6*x**2-10*x-8)),expand;
```

```
(%o21) 1680 x^{11} + 1928 x^{10} - 10732 x^9 - 15922 x^8 + 11418 x^7 + 26064 x^6 + 13704 x^5 + 4820 x^4 - 17380 x^3 - 28960 x^2 - 10560 x
```

Figure 9:

$$9. \frac{7d}{7} - \frac{4d}{14}$$

$$\frac{5d}{7}$$

```
--> (7*d)/7-(4*d)/14;
```

```
(%o13) \frac{5 d}{7}
```

Figure 10:

$$10. \frac{8k}{3} - \frac{4k}{12}$$

$$\frac{7k}{3}$$

```
--> (8*k)/3-(4*k)/12;
```

```
(%o14)  $\frac{7k}{3}$ 
```

Figure 11:

11.
$$\frac{3d-8}{5} - \frac{2d-11}{15}$$

$$\frac{7d-13}{15}$$

```
--> (3*d-8)/5-(2*d-11)/15;
```

```
(%o15)  $\frac{3d-8}{5} - \frac{2d-11}{15}$ 
```

```
--> %,ratsimp;
```

```
(%o16)  $\frac{7d-13}{15}$ 
```

Figure 12:

12.
$$(16x+17) - (12x+10)$$

$$4x+7$$

```
--> (16*x+17)-(12*x+10);
```

```
(%o17)  $4x+7$ 
```

Figure 13:

13.
$$(15x+17) - (14x+12)$$

$$x+5$$

```
--> (15*x+17)-(14*x+12);
```

```
(%o18)  $x+5$ 
```

Figure 14:

$$14. \quad (14x^2 + 5x + 18) - (5x^2 + 17x + 13)$$

$$9x^2 - 12x + 5$$

$$\text{--> } (14*x**2+5*x+18)-(5*x**2+17*x+13);$$

$$(\%o19) \ 9 \ x^2 - 12 \ x + 5$$

Figure 15:

$$15. \quad \frac{60a^3}{96a^6}$$

$$5$$

$$\frac{5}{8a^3}$$

$$8a^3$$

$$\text{--> } (60*a**3)/(96*a**6);$$

$$(\%o22) \ \frac{5}{8 \ a^3}$$

Figure 16:

$$16. \quad \frac{72k^2}{108k^4}$$

$$2$$

$$\frac{2}{3k^2}$$

$$3k^2$$

$$\text{--> } (72*k**2)/(108*k**4);$$

$$(\%o23) \ \frac{2}{3 \ k^2}$$

Figure 17:

$$17. \quad \frac{j-7}{-8j^2+392}$$

$$\frac{1}{-8j-56}$$

```
--> (j-7)/(-8*j**2+392);
```

```
(%o24)  $\frac{j-7}{392-8j^2}$ 
```

```
--> %,ratsimp;
```

```
(%o25)  $-\frac{1}{8j+56}$ 
```

Figure 18:

$$18. \quad \frac{6a}{8} - \frac{7a+5}{16}$$

$$\frac{5a-5}{16}$$

```
--> (6*a)/8-(7*a+5)/16;
```

```
(%o26)  $\frac{3a}{4} - \frac{7a+5}{16}$ 
```

```
--> %,ratsimp;
```

```
(%o27)  $\frac{5a-5}{16}$ 
```

Figure 19:

$$19. \quad \frac{8}{h} - \frac{4}{x}$$

$$\frac{8x-4h}{hx}$$

```
--> (8/h-4/x);
```

```
(%o28)  $\frac{8}{h} - \frac{4}{x}$ 
```

```
--> %,ratsimp;
```

$$(\%o29) \frac{8x - 4h}{hx}$$

Figure 20:

$$20. \quad \frac{3g + 12}{3} + \frac{2g}{12}$$

$$\frac{7g + 24}{6}$$

```
--> (3*g+12)/3+(2*g)/12;
```

$$(\%o30) \frac{3g + 12}{3} + \frac{g}{6}$$

```
--> %,ratsimp;
```

$$(\%o31) \frac{7g + 24}{6}$$