Ex:

$$\frac{\frac{x}{y}+\frac{y}{x}+2}{\frac{1}{x}+\frac{1}{y}} = \frac{x\cdot y\left(\frac{x}{y}+\frac{y}{x}+2\right)}{x\cdot y\left(\frac{1}{x}+\frac{1}{y}\right)} = \frac{\frac{x\cdot x\cdot y}{y}+\frac{x\cdot y\cdot y}{x}+2\cdot x\cdot y}{\frac{x\cdot y}{x}+\frac{x\cdot y}{y}}$$

$$= \frac{x^2+2\cdot x\cdot y+y^2}{x+y} = \frac{(x+y)^2}{x+y} = x+y$$

Ex:

$$\frac{18a^2+9ab-2b^2}{18a^2+24ab+8b^2} - \frac{9b}{2(9a+6b)}$$

$(x+y)^2 = x^2+2xy+y^2$

$$18a^2+24ab+8b^2 = 2(\underbrace{9a^2}_{3^2}+\underbrace{12ab}_{2\cdot3\cdot2}+\underbrace{4b^2}_{2^2})$$

$$= 2(3a+2b)^2$$

$$= \frac{18a^2+9ab-2b^2}{2(3a+2b)^2} - \frac{9b}{2\cdot3(3a+2b)}$$

Mgh: $2\cdot3\cdot(3a+2b)^2$

$$= \frac{3(18a^2+9ab-2b^2)}{2\cdot3(3a+2b)^2} - \frac{9b(3a+2b)}{2\cdot3(3a+2b)^2}$$

$$= \frac{3(18a^2+9ab-2b^2-9ab-6b^2)}{2\cdot3\cdot(3a+2b)^2}$$

$$= \frac{18a^2-8b^2}{2(3a+2b)^2} = \frac{\underbrace{9a^2}_{3^2}-\underbrace{4b^2}_{2^2}}{(3a+2b)^2} = \frac{(3a-2b)(3a+2b)}{(3a+2b)^2} = \frac{3a-2b}{3a+2b}$$

Ex:

$$\frac{2x}{7} = \frac{3}{5}$$

$$\frac{2}{7}x = \frac{3}{5}$$

$$\frac{7}{2}\cdot\frac{2}{7}\cdot x = \frac{7}{2}\cdot\frac{3}{5}$$

$$\frac{7\cdot 2}{2\cdot 7}x = \frac{7\cdot 3}{2\cdot 5}$$

$$x = \frac{21}{10}$$

Ex:

$$(3x-6)(4x+12)=0$$

$3x-6=0$ eller $4x+12=0$

$3x=6$ $\qquad$ $4x=-12$

$x=2$ $\qquad$ $x=-3$

Ex:

$$4(2x-5)^3+7(2x-5)^2=0$$

$$(2x-5)^2(4(2x-5)+7)=0$$

$$(2x-5)^2(8x-20+7)=0$$

$$(2x-5)^2(8x-13)=0$$

$2x-5=0$ eller $8x-13=0$

$2x=5$ $\qquad$ $8x=13$

$x=\frac{5}{2}$ $\qquad$ $x=\frac{13}{8}$

$(x-2)^2=0$

$x^2-4x+4=0$

$x=2$

$x^2=4$

$x=2$ eller $x=-2$

Ex: Rät linje genom (1, -2) med $k = -3$

$y = kx + m$

$\swarrow k = -3$

$y = -3x + m$

går genom (1, -2)

$-2 = -3 \cdot 1 + m$

$-2 + 3 = m$

$\boxed{m = 1}$

Svar:

$y = -3x + 1$

A4

$y - y_0 = k(x - x_0)$

$y - (-2) = (-3)(x - 1)$

$y + 2 = (-3)(x - 1)$

$y = (-3)x + 3 - 2$

$= -3x + 1$