

Speciallektion kapitel 2

Nedan finns ett antal räkneoperationer utförda. Du skall i rutorna till höger formulera förklarande/beskrivande text till rutorna till vänster.

I den första rutan skall du alltid formulera en fråga eller en uppgiftsbeskrivning. I följande rutor beskriver du beräkningssteget/vad som utförts.

$3x^2y - 6xy^2 + 9x^2y^2$	
$3xy(x - 2y + 3xy)$	
$4x^2 - 24x + 36$	
$2^2x^2 - 2 \cdot 2x \cdot 6 + 6^2$	
$(2x - 6)^2$	
$\frac{3^4 \cdot 9}{27^2}$	
$\frac{3^4 \cdot 3^2}{(3^3)^2}$	

$\frac{3^{4+2}}{3^{3 \cdot 2}}$	
$\frac{3^6}{3^6} = 1$	

$x(x-5)(x+7)(x+3) = 0$	
$x_1 = 0$ $x_2 = 5$ $x_3 = -7$ $x_4 = -3$	

$9x^3 - 16x = 0$	
$x(9x^2 - 16) = 0$	
$x(3x+4)(3x-4) = 0$	
$3x_2 + 4 = 0$ $3x_3 - 4 = 0$ $3x_2 = -4$ $3x_3 = 4$ $x_1 = 0$ $x_2 = -\frac{4}{3}$ $x_3 = \frac{4}{3}$	

$\frac{x^2 - 18x + 81}{x^2 + 2x} \div \frac{81 - x^2}{x^2 + 4x + 4}$	
$\frac{x^2 - 18x + 81}{x^2 + 2x} \cdot \frac{x^2 + 4x + 4}{81 - x^2}$	
$\frac{(x-9)^2}{x(x+2)} \cdot \frac{(x+2)^2}{(9+x)(9-x)}$	
$\frac{(x-9)^2}{x(x+2)} \cdot \frac{(x+2)^2}{(9+x)(-1)(x-9)}$	
$\frac{(x-9)}{x} \cdot \frac{(x+2)}{(9+x)(-1)}$	
$-\frac{x^2 + 2x - 9x - 18}{9x + x^2} = \frac{x^2 - 7x - 18}{9x + x^2}$ $x \neq -9$ $x \neq -2$	
$\frac{4}{x} + \frac{1}{x+2}$	
$\frac{4}{x} + \frac{1}{x+2} \quad MGN = x(x+2)$	
$\frac{4}{x} \cdot \frac{(x+2)}{(x+2)} + \frac{1}{(x+2)} \cdot \frac{x}{x}$	

$\frac{4x+8}{x(x+2)} + \frac{x}{x(x+2)} = \frac{4x+8+x}{x(x+2)} = \frac{5x+8}{x(x+2)}$	
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$x^2 - 2x > 15$	
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$x^2 - 2x - 15 > 0$	
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$x^2 - 2x - 15 = 0$	
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$x = +\frac{2}{2} \pm \sqrt{1^2 + 15} = 1 \pm \sqrt{16} = 1 \pm 4$ $x_1 = 5$ $x_2 = -3$	
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<table style="border-collapse: collapse; margin-left: 20px;"> <tr> <td style="padding-right: 20px;">x</td> <td style="padding-right: 20px;"></td> <td style="padding-right: 20px;">-3</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">5</td> <td></td> <td></td> </tr> <tr> <td>$x^2 - 2x - 15$</td> <td style="text-align: center;">$+$</td> <td style="text-align: center;">0</td> <td style="text-align: center;">$-$</td> </tr> <tr> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">$+$</td> <td></td> </tr> </table>	x		-3			5			$x^2 - 2x - 15$	$+$	0	$-$		0	$+$		
x		-3															
	5																
$x^2 - 2x - 15$	$+$	0	$-$														
	0	$+$															

$x < -3$ $x > 5$	
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$\frac{5}{x} + \frac{2}{(x-2)} = \frac{3}{(x-2)}$	
$\frac{5}{x} + \frac{2}{(x-2)} = \frac{3}{(x-2)} \quad MGN = x(x-2)$	
$x(x-2) \left(\frac{5}{x} + \frac{2}{(x-2)} \right) = x(x-2) \left(\frac{3}{(x-2)} \right)$	
$\frac{5x(x-2)}{x} + \frac{2x(x-2)}{(x-2)} = \frac{3x(x-2)}{(x-2)}$	
$5(x-2) + 2x = 3x$	
$\begin{aligned} 5x - 10 + 2x - 3x &= 0 \\ 4x &= 10 \\ x &= \frac{10}{4} = 2,5 \end{aligned}$	