Day 6

① $\frac{4}{2(3/2)-3} + \frac{2}{(3/2)+4} = \frac{2(3/2)}{(3/2)^2-8}$

$\frac{4}{0} + \frac{4}{11} = \frac{-12}{23}$

↑ World imploder

[no solution]

② $\frac{4}{4+4} - \frac{2}{4} = \frac{2(4)-8}{(4)^2}$

$\frac{1}{2} \quad \frac{2}{4} \quad \frac{4}{8} - \frac{2}{4} \frac{1}{2} = \frac{8-8}{16}$

$0 = 0$ ✓ yes → solution

③ $\frac{2}{1} = \frac{(x+2)}{(x-3)}$

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

$2x-6 = x+2$

$\boxed{x=8}$ ✓

④ $\frac{1}{x+5} = \frac{2}{7x}$

$7x = 2x+10$

$5x = 10 \quad \boxed{x=2}$ ✓

⑤ $\frac{x}{3} = \frac{-2}{x+7}$

$x(x+7) = 3(-2)$

$x^2+7x = -6$

$x^2+7x+6 = 0$

$(x+1)(x+6) = 0$

$x = -1, -6$ ✓ ✓

⑥ $\frac{2x+4}{5x} = \frac{2}{x}$

$10x = 2x^2+4x$

$0 = 2x^2-6x$

$0 = 2x(x-3)$

$x = 0, 3 = x$ ✓

⑦ $\frac{x+1}{x-2} = \frac{x-3}{x}$

	x	-3
x	x^2	$-3x$
-2	$-2x$	$+6$

$x^2+x = x^2-5x+6$

$-x^2-x \quad -x^2-6$

$0 = -6x+6$

$0 = -6(x-1)$

$x = 1$ ✓

	$2x$	3
$2x$	$4x^2$	$+6x$
-3	$-6x$	-9

⑧ $\frac{2x+3}{3x} = \frac{x}{2x-3}$

$3x^2 = 4x^2-9$

$-3x^2 \quad -3x^2$

$0 = x^2-9$

$x = 3, -3$ ✓ ✓