$2t^2 - 3t - 2 = 0$ $ax^2 + bx + c = 0$; $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$t = \frac{3 \pm \sqrt{(-3)^2 - 4 \times 2 \times (-2)}}{4}$ $a = 2$, $b = -3$, $c = -2$

$t = \frac{3 \pm \sqrt{9 + 16}}{4}$

$t = \frac{3 \pm 5}{4}$

$t = \frac{3 + 5}{4}$ or $\frac{3 - 5}{4}$

$t = 2$ or $-\frac{1}{2}$

$t = x^{1/4}$

$x^{1/4} = 2$ or $x^{1/4} = -\frac{1}{2}$

$(x^{1/4})^4 = 2^4$ or $(x^{1/4})^4 = \left(\frac{-1}{2}\right)^4$

$x = 16$ or $x = \frac{1}{2^4} = \frac{1}{16}$

அதனால், தீர்வுகள் $= 16, \frac{1}{16}$ //

2) $x^{-1} + x^{-1/2} = 3/4$ $x = (x^{1/2})^2$

$\frac{1}{x} + \frac{1}{x^{1/2}} = 3/4$

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

$x^{1/2} = t \Rightarrow \frac{1}{t^2} + \frac{1}{t} = \frac{3}{4}$

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

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $3t^2 - 4t - 4 = 0$

$a = 3$, $b = -4$, $c = -4$

$t = \frac{4 \pm \sqrt{16 + 48}}{6} = \frac{4 \pm 8}{6}$

$t = \frac{12}{6}$ or $\frac{-4}{6}$

$t = 2$ or $\frac{-2}{3}$

$x^{1/2} = 2$ or $x^{1/2} = \frac{-2}{3}$

$x = 4$ or $x = \frac{4}{9}$

அதனால், தீர்வுகள் $= 4, 4/9$ //

3) $\frac{5}{x^2 + 6x + 8} = \frac{1}{x^2 + 6x + 5} + \frac{4}{x^2 + 6x + 9}$

$x^2 + 6x = t \Rightarrow \frac{5}{t + 8} = \frac{1}{t + 5} + \frac{4}{t + 9}$

$\frac{5}{(t + 8)} = \frac{5t + 29}{(t + 5)(t + 9)}$

$\frac{5}{t + 8} = \frac{1}{t + 5} + \frac{4}{t + 9}$

$\times (t + 5) \Rightarrow$

$\frac{5(t + 5)}{(t + 8)} = \frac{(t + 5)}{(t + 5)} + (t + 5) \times \frac{4}{(t + 9)}$

$\times (t + 8) \Rightarrow$

$5(t + 5) =$

$\frac{5}{(t + 8)} = \frac{5t + 29}{(t + 5)(t + 9)}$

$5(t + 5)(t + 9) = (5t + 29)(t + 8)$

$5(t^2 + 14t + 45) = (5t^2 + 69t + 232)$

$t = 232 - 5 \times 45 = 7$

$x^2 + 6x = 7$

$x^2 + 6x - 7 = 0$; $a = 1$, $b = 6$, $c = -7$

$x = \frac{-6 \pm \sqrt{36 - 4 \times 1 \times (-7)}}{2}$

$x = \frac{-6 \pm \sqrt{36 + 28}}{2} = \frac{-6 \pm 8}{2}$

$x = \frac{-6 + 8}{2}$ or $x = \frac{-6 - 8}{2}$

$x = 1$ or $x = -7$

அதனால், தீர்வுகள் $= 1, -7$ //

4) $2\left(x^2 + \frac{1}{x^2}\right) - 9\left(x + \frac{1}{x}\right) + 14 = 0$ (t)

$\left(x + \frac{1}{x}\right)^2 = x^2 + \frac{1}{x^2} + 2$ ($2 \times x \times \frac{1}{x}$)

$x^2 + \frac{1}{x^2} = \left(x + \frac{1}{x}\right)^2 - 2$

$t^2 - 2$

$\left(x + \frac{1}{x}\right)^2 = t^2$ $(a + b)^2 = a^2 + b^2 + 2ab$

$x^2 + \frac{1}{x^2} + 2 = t^2$

$x^2 + \frac{1}{x^2} = t^2 - 2$

$2\underbrace{\left(x^2 + \frac{1}{x^2}\right)}_{t^2 - 2} - 9\underbrace{\left(x + \frac{1}{x}\right)}_{t} + 14 = 0$

$2(t^2 - 2) - 9t + 14 = 0$

$2t^2 - 9t + 10 = 0$; $a = 2$, $b = -9$, $c = 10$

$t = \frac{9 \pm \sqrt{81 - 80}}{4}$

$t = \frac{9 \pm 1}{4}$

$t = \frac{9 + 1}{4}$ or $t = \frac{9 - 1}{4}$

$t = \frac{5}{2}$ or $t = 2$

$x + \frac{1}{x} = \frac{5}{2}$ or $x + \frac{1}{x} = 2$

$x + \frac{1}{x} = 2 + \frac{1}{2}$ or $x + \frac{1}{x} = 1 + \frac{1}{1}$

$x = 2$ or $\frac{1}{2}$ or $x = 1$ or $\frac{1}{1}$

$x + \frac{1}{x} = \frac{1}{2} + \frac{1}{1/2} = \frac{1}{2} + 2$

$x = \frac{1}{2}, 2, 1$

$x + \frac{1}{x} = y + \frac{1}{y}$

$x = y, \frac{1}{y}$