$$3^{2x} - 10 \cdot 3^x + 9 = 0 \quad (110$$

$$3^x \cdot 3^x - 10 \cdot 3^x + 9 = 0 \qquad \underline{t = 3^x}$$

$$t \cdot t - 10 \cdot t + 9 = 0$$

$$t^2 - 10t + 9$$

$$1, 9$$

$$3^x = 1 \longrightarrow \boxed{x = 0}$$

$$3^x = 9 \longrightarrow \boxed{x = 2}$$

$$16 \cdot 64^x - 65 \cdot 8^x + 4 = 0 \quad (116$$

$$16 \cdot 8^{2x} - 65 \cdot 8^x + 4 = 0 \qquad \underline{t = 8^x}$$

$$16 \cdot t^2 - 65 \cdot t + 4 = 0$$

$$16t^2 - 65t + 4 = 0$$

$$\sqrt{abc} \qquad \Big| \quad 8^x = 4 \longrightarrow \Big| \quad 8^x = \frac{1}{16}$$

$$4, \frac{1}{16} \qquad \Big| \quad 2^{3x} = 2^2 \qquad \Big| \quad 8^x = 16^{-1}$$

$4, \frac{1}{16}$

$2 = 2$

$3x = 2 \;/\; :3$

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

$8 = 16$

$2^{3x} = 2^4$

$3x = 4$

$$x = \frac{-4}{3}$$

$9^{x+1} - 10 \cdot 3^x + 1 = 0$ (118

$9^x \cdot 9^1 - 10 \cdot 3^x + 1 = 0$

$3^{2x} \cdot 3^2 - 10 \cdot 3^x + 1 = 0$

$t \cdot t \cdot 3 - 10t + 1 = 0$

$9t^2 - 10t + 1 = 0$

$t = 3^x$

$\sqrt{abc}$

$1, \frac{1}{9}$

$3^x = 1 \rightarrow$ $x = 0$

$3^x = \frac{1}{9} \rightarrow 3^x = 9^{-1}$

$x = -2$

$9^{x-1} + 3^{x-3} = 82$ (120

$$9^x \cdot 9^{-1} + 3^x \cdot 3^{-3} - 82 = 0 \qquad f - 3^x$$

$$3^{2x} \cdot 3^{-2} + 3^x \cdot 3^{-3} - 82 = 0$$

$$f^2 \cdot 3^{-2} + f \cdot 3^{-3} - 82 = 0$$

$$\frac{1}{9} f^2 + \frac{1}{27} f - 82 = 0$$

$$27, -\frac{82}{3}$$

$$3^x = 27 \rightarrow \boxed{x = 3}$$

$$3^x = -\frac{82}{3} \rightarrow \cancel{9^x = -82}$$

$$4^x + 8 \cdot 4^{-x} = 6 \quad (126$$

$$y + 8 \cdot \frac{1}{y} - 6 = 0 \,/\, y \qquad \underline{y = 4^x}$$

$$y^2 - 6y + 8 = 0$$

$$y - 6y + 8 = 0$$

$$\underline{2, 4} \quad / \quad \begin{array}{l} 4^x = 2 \\ 2x = 1 \\ \boxed{x = 0.5} \end{array} \quad / \quad \begin{array}{l} 4^x = 4 \\ \boxed{x = 1} \end{array}$$

$$9 \cdot \left(\frac{4}{9}\right)^{x + \frac{1}{2}} - 10 \cdot \left(\frac{3}{2}\right)^{-x} + 4 = 0 \quad (132$$

$$9 \cdot \left(\frac{2^2}{3}\right)^{x + \frac{1}{2}} - 10 \cdot \left(\frac{2^{-1}}{3}\right)^{-x}$$

$$9\left(\frac{2}{3}\right)^{2\left(x + \frac{1}{2}\right)} - 10 \; \frac{2}{3}^x + 4 = 0$$

$$9\left(\frac{2}{3}\right)^{2x + 1} - 10 \; \frac{2}{3}^x + 4 = 0$$

$$9\left(\frac{2}{3}\right)^x \cdot \left(\frac{2}{3}\right)^x \cdot \left(\frac{2}{3}\right)^1 - 10 \frac{2}{3}^x + 4 = 0 \qquad t = \frac{2}{3}^x$$

$$9t \cdot t \cdot \frac{2}{3} - 10t + 4 = 0$$

$$6t^2 - 10t + 4 = 0$$

$\sqrt{abc}$

$1, \dfrac{2}{3}$

$\dfrac{2^x}{3} = \dfrac{2}{3} \longrightarrow$ $\boxed{X = 1}$

$\dfrac{2^x}{3} = 1 \longrightarrow$ $\boxed{X = 0}$

$$3 \cdot 9^{X-\frac{1}{2}} - 3^{X-1} = 3^{X+2} - 3 \quad (136$$

$t = \underline{3^x}$

$3 \cdot 3^x \cdot 3^x \cdot 9^{-\frac{1}{2}} - 3^x \cdot 3^{-1} = 3^x \cdot 3^2 - 3$

$3 \cdot t^2 \cdot 9^{\frac{1}{2}} - t \cdot 3^{-1} = t \cdot 3^2 - 3$

$3t^2 \cdot 9^{-\frac{1}{2}} - \dfrac{1}{3} t = 9t - 3$

$t^2 - 9\dfrac{1}{3} t + 3 = 0$

$\sqrt{abc}$

$\underline{10 \quad 1} \longrightarrow$

$3^x = 9 \longrightarrow \boxed{X = 2}$

$2^x = 1 \longrightarrow \underline{1^{-x}} = \underline{1}$

$$\boxed{9, \frac{1}{3}} \rightarrow \quad 3^x = \frac{1}{3} \rightarrow \frac{1}{3}^{-x} = \frac{1}{3}^1$$

$$\boxed{x = -1}$$

$$\frac{8}{3^x - 1} + \frac{20}{3^x + 1} = 3 \quad (138$$

$$t = 3^x$$

$$\frac{8}{t - 1} + \frac{20}{t + 1} = 3$$

$$8(t+1) + 20(t-1) = 3(t+1)(t-1)$$

$$8t + 8 + 20t - 20 = 3t^2 - 3$$

$$3t^2 - 3 + 20 - 20t - 8 - 8t = 0$$

$$3t^2 - 28t + 9 = 0$$

$$\sqrt{abc}$$

$$9, \frac{1}{3}$$

$$x \quad 0 \quad \rightarrow \boxed{x = 2}$$

$$3^x = 9 \quad \rightarrow \quad \boxed{x = 2}$$

$$3^x = \frac{1}{3} \quad \rightarrow \quad \boxed{x = -1}$$