

الف. تکاملیف میباشود (نموده دستراند)

$$\frac{2x^3 + 3x^2 - 8x + 3}{x-1} \rightarrow 2x^2 + 5x - 4 \Rightarrow \frac{x+4}{(2x^2+5x-4)(x-1)}$$

14,0

R- {ریشه ها} ← فخرج باید صفر باشد

- ① $x-1=0 \rightarrow x=1$
- ② $2x^2+5x-4=0 \rightarrow x^2+5x-4=0 \Rightarrow (x-1)(x+4) \Rightarrow x-1=0 \rightarrow x=1$
 $x+4=0 \rightarrow x=-4$

R- {+1, -4}

$$\frac{2x^3 + 9x^2 + 10x + 4}{x+1} \rightarrow 2x^2 + 7x + 4 \Rightarrow \frac{x+4}{(2x^2+7x+4)(x+1)}$$

ب-1

R- {ریشه ها} ← فخرج باید صفر باشد

- ① $x+1=0 \rightarrow x=-1$
- ② $2x^2+7x+4=0 \rightarrow x^2+7x+4=0 \Rightarrow (x+4)(x+1) \Rightarrow x+4=0 \rightarrow x=-4$
 $x+1=0 \rightarrow x=-1$

R- {-1, -4}

$$\frac{x^3 - 2x^2 + 2x - 1}{x-1} \rightarrow x^2 - x + 1 \Rightarrow \frac{x+1}{(x^2-x+1)(x-1)}$$

الف-2

- ① $x-1=0 \rightarrow x=1$
- ② $x^2-x+1=0 \rightarrow \Delta \rightarrow b^2-4ac = (-1)^2 - (4)(1)(1) = 1-4 = -3 \Rightarrow \Delta < 0$
 ریشه ندارد

R- {1}

ب-1 این قسمت درست مثل قسمت الف سوال بوده با این تفاوت که عبارت زیر رادیکال قرار دارد و برای صورت هم باید ریشه را تعریف کنیم

$\frac{x+1}{(x^2-x+1)(x-1)} \geq 0$
 $\Delta < 0$
 ① $x+1=0 \rightarrow x=-1$
 ② $x-1=0 \rightarrow x=1$

x	3	1
+	-	+
-	-	+
+	-	+

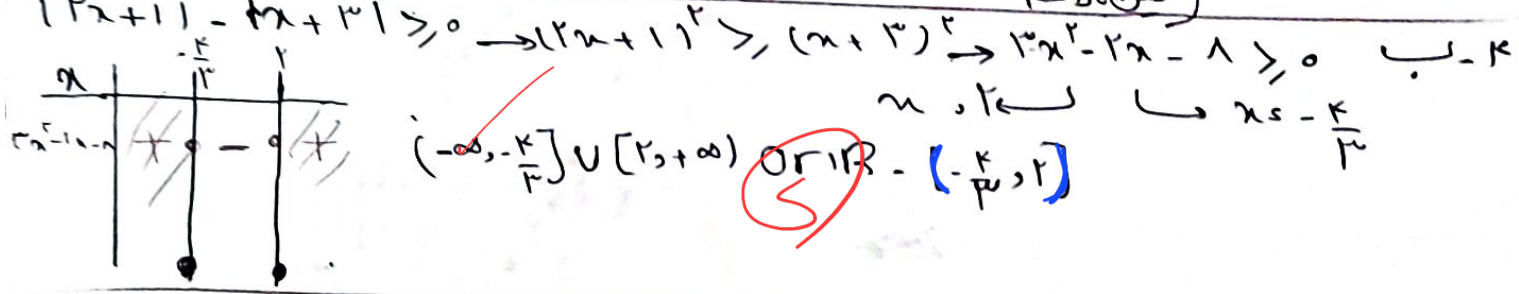
→ $(-\infty, -1] \cup (1, +\infty)$

$x^r - \omega |x-1| |x+\omega| \neq 0 \rightarrow x^r - \omega |x-1| \cdot |x+\omega| = 0$

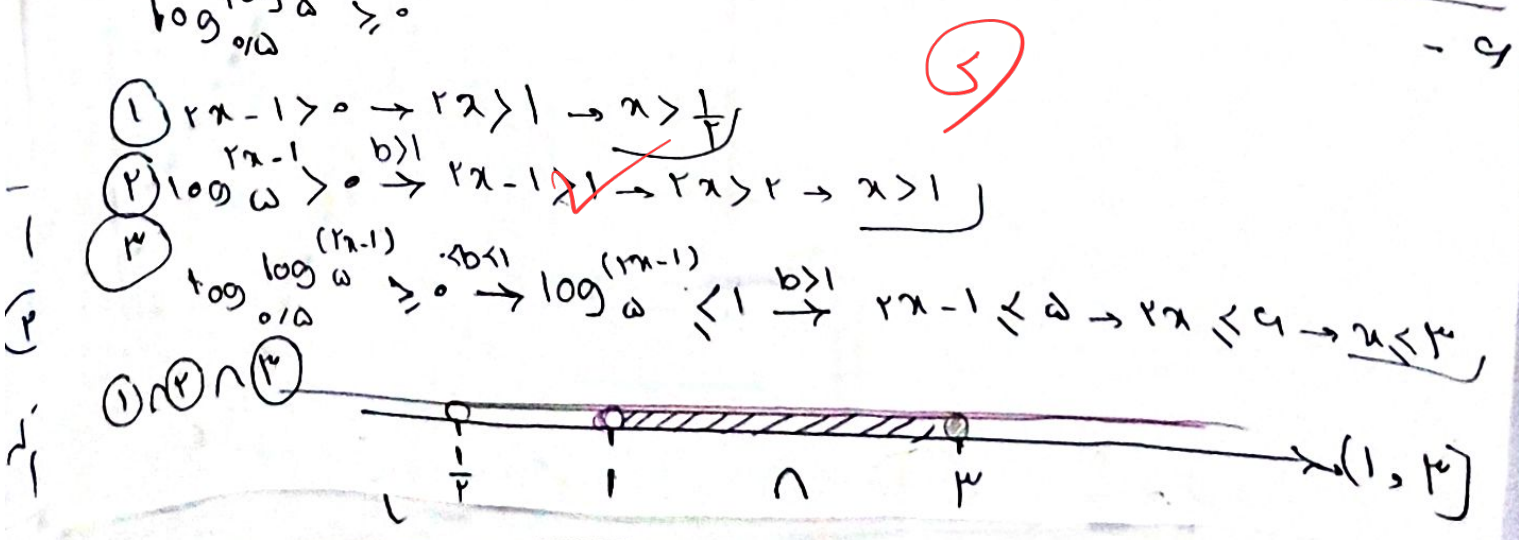
Case $\rightarrow x^r - \omega |x+\omega| - |x+\omega| \rightarrow x^r - \omega |x+\omega| = 0 \rightarrow x^r = \omega |x+\omega|$
 $\rightarrow x^r = \omega (x+\omega) \rightarrow x^r = \omega x + \omega^2$
 $x^r - \omega x - \omega^2 = 0 \rightarrow x^r + \omega x = \omega^2 \rightarrow x(x+\omega) = \omega^2$
 $x(x+\omega) = \omega^2$

if $\rightarrow x-1 > 0 \rightarrow D_f = R - \{1, \omega\}$
 if $\rightarrow x-1 < 0 \rightarrow D_f = R - \{0, -1\}$

$|x+1| - |x+\omega| \neq 0 \rightarrow |x+1| - |x+\omega| = 0 \rightarrow |x+1| = |x+\omega|$
 $(x+1)^2 = (x+\omega)^2 \rightarrow x^2 + 2x + 1 = x^2 + 2\omega x + \omega^2 \rightarrow 2x + 1 = 2\omega x + \omega^2$
 $x^2 - 2x - \omega^2 = 0 \rightarrow (x-1)(x+\omega) = 0$
 $x = 1$
 $x = -\omega = -\frac{1}{\omega} = -\frac{1}{\omega}$



$\log_r (1 - \log_r x) > 0 \rightarrow 1 - \log_r x > 0 \rightarrow \log_r x < 1 \rightarrow x < r \rightarrow D_f = (-\infty, r)$
 $\log_r (1 - \log_r \frac{1}{r}) > 0 \rightarrow 1 - \log_r \frac{1}{r} > 0 \rightarrow \log_r \frac{1}{r} < 1 \rightarrow \frac{1}{r} < x \rightarrow D_f = (\frac{1}{r}, \infty)$

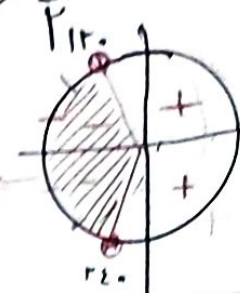


الف - V

$$\log(r \cos x + 1) \geq 0 \rightarrow r \cos x + 1 > 0 \rightarrow r \cos x > -1 \rightarrow \cos x > -\frac{1}{r}$$

$$D_f = \mathbb{R} - \left[r k \pi + \frac{r\pi}{2}, r k \pi - \frac{r\pi}{2} \right]$$

$$r \cos x + 1 > 0 \rightarrow r \cos x > -1 \rightarrow \cos x > -\frac{1}{r}$$

$$r k \pi \leq x < r k \pi + \frac{r\pi}{2}$$


$$\sqrt{\log \frac{x-1}{x+1}}$$

(1) $\log \frac{x-1}{x+1} \geq 0$

$$\frac{x-1}{x+1} \geq 1 \rightarrow x-1 \geq x+1 \rightarrow -1 \geq 1$$

(2) $\frac{x-1}{x+1} < 1$

$$\frac{x-1}{x+1} < 1 \rightarrow x-1 < x+1 \rightarrow -1 < 1$$

(3) $\frac{x-1}{x+1} < 0$

$$\frac{x-1}{x+1} < 0 \rightarrow x-1 < 0 \text{ and } x+1 > 0 \rightarrow x < 1 \text{ and } x > -1 \rightarrow -1 < x < 1$$

(4) $\frac{x-1}{x+1} > 0$

$$\frac{x-1}{x+1} > 0 \rightarrow x-1 > 0 \text{ and } x+1 < 0 \rightarrow x > 1 \text{ and } x < -1 \rightarrow \text{No solution}$$

(5) $\frac{x-1}{x+1} = 0$

$$\frac{x-1}{x+1} = 0 \rightarrow x-1 = 0 \rightarrow x = 1$$

(6) $\frac{x-1}{x+1} = 1$

$$\frac{x-1}{x+1} = 1 \rightarrow x-1 = x+1 \rightarrow -1 = 1$$

(7) $\frac{x-1}{x+1} = -1$

$$\frac{x-1}{x+1} = -1 \rightarrow x-1 = -x-1 \rightarrow 2x = 0 \rightarrow x = 0$$

(8) $\frac{x-1}{x+1} = 2$

$$\frac{x-1}{x+1} = 2 \rightarrow x-1 = 2x+2 \rightarrow -x = 3 \rightarrow x = -3$$

(9) $\frac{x-1}{x+1} = -2$

$$\frac{x-1}{x+1} = -2 \rightarrow x-1 = -2x-2 \rightarrow 3x = -1 \rightarrow x = -\frac{1}{3}$$

(10) $\frac{x-1}{x+1} = 3$

$$\frac{x-1}{x+1} = 3 \rightarrow x-1 = 3x+3 \rightarrow -2x = 4 \rightarrow x = -2$$

(11) $\frac{x-1}{x+1} = -3$

$$\frac{x-1}{x+1} = -3 \rightarrow x-1 = -3x-3 \rightarrow 4x = -2 \rightarrow x = -\frac{1}{2}$$

(12) $\frac{x-1}{x+1} = 4$

$$\frac{x-1}{x+1} = 4 \rightarrow x-1 = 4x+4 \rightarrow -3x = 5 \rightarrow x = -\frac{5}{3}$$

(13) $\frac{x-1}{x+1} = -4$

$$\frac{x-1}{x+1} = -4 \rightarrow x-1 = -4x-4 \rightarrow 5x = -3 \rightarrow x = -\frac{3}{5}$$

(14) $\frac{x-1}{x+1} = 5$

$$\frac{x-1}{x+1} = 5 \rightarrow x-1 = 5x+5 \rightarrow -4x = 6 \rightarrow x = -\frac{3}{2}$$

(15) $\frac{x-1}{x+1} = -5$

$$\frac{x-1}{x+1} = -5 \rightarrow x-1 = -5x-5 \rightarrow 6x = -4 \rightarrow x = -\frac{2}{3}$$

(16) $\frac{x-1}{x+1} = 6$

$$\frac{x-1}{x+1} = 6 \rightarrow x-1 = 6x+6 \rightarrow -5x = 7 \rightarrow x = -\frac{7}{5}$$

(17) $\frac{x-1}{x+1} = -6$

$$\frac{x-1}{x+1} = -6 \rightarrow x-1 = -6x-6 \rightarrow 7x = -5 \rightarrow x = -\frac{5}{7}$$

(18) $\frac{x-1}{x+1} = 7$

$$\frac{x-1}{x+1} = 7 \rightarrow x-1 = 7x+7 \rightarrow -6x = 8 \rightarrow x = -\frac{4}{3}$$

(19) $\frac{x-1}{x+1} = -7$

$$\frac{x-1}{x+1} = -7 \rightarrow x-1 = -7x-7 \rightarrow 8x = -6 \rightarrow x = -\frac{3}{4}$$

(20) $\frac{x-1}{x+1} = 8$

$$\frac{x-1}{x+1} = 8 \rightarrow x-1 = 8x+8 \rightarrow -7x = 9 \rightarrow x = -\frac{9}{7}$$

(21) $\frac{x-1}{x+1} = -8$

$$\frac{x-1}{x+1} = -8 \rightarrow x-1 = -8x-8 \rightarrow 9x = -7 \rightarrow x = -\frac{7}{9}$$

(22) $\frac{x-1}{x+1} = 9$

$$\frac{x-1}{x+1} = 9 \rightarrow x-1 = 9x+9 \rightarrow -8x = 10 \rightarrow x = -\frac{5}{4}$$

(23) $\frac{x-1}{x+1} = -9$

$$\frac{x-1}{x+1} = -9 \rightarrow x-1 = -9x-9 \rightarrow 10x = -8 \rightarrow x = -\frac{4}{5}$$

(24) $\frac{x-1}{x+1} = 10$

$$\frac{x-1}{x+1} = 10 \rightarrow x-1 = 10x+10 \rightarrow -9x = 11 \rightarrow x = -\frac{11}{9}$$

(25) $\frac{x-1}{x+1} = -10$

$$\frac{x-1}{x+1} = -10 \rightarrow x-1 = -10x-10 \rightarrow 11x = -9 \rightarrow x = -\frac{9}{11}$$

(26) $\frac{x-1}{x+1} = 11$

$$\frac{x-1}{x+1} = 11 \rightarrow x-1 = 11x+11 \rightarrow -10x = 12 \rightarrow x = -\frac{6}{5}$$

(27) $\frac{x-1}{x+1} = -11$

$$\frac{x-1}{x+1} = -11 \rightarrow x-1 = -11x-11 \rightarrow 12x = -10 \rightarrow x = -\frac{5}{6}$$

(28) $\frac{x-1}{x+1} = 12$

$$\frac{x-1}{x+1} = 12 \rightarrow x-1 = 12x+12 \rightarrow -11x = 13 \rightarrow x = -\frac{13}{11}$$

(29) $\frac{x-1}{x+1} = -12$

$$\frac{x-1}{x+1} = -12 \rightarrow x-1 = -12x-12 \rightarrow 13x = -11 \rightarrow x = -\frac{11}{13}$$

(30) $\frac{x-1}{x+1} = 13$

$$\frac{x-1}{x+1} = 13 \rightarrow x-1 = 13x+13 \rightarrow -12x = 14 \rightarrow x = -\frac{7}{6}$$

(31) $\frac{x-1}{x+1} = -13$

$$\frac{x-1}{x+1} = -13 \rightarrow x-1 = -13x-13 \rightarrow 14x = -12 \rightarrow x = -\frac{6}{7}$$

(32) $\frac{x-1}{x+1} = 14$

$$\frac{x-1}{x+1} = 14 \rightarrow x-1 = 14x+14 \rightarrow -13x = 15 \rightarrow x = -\frac{15}{13}$$

(33) $\frac{x-1}{x+1} = -14$

$$\frac{x-1}{x+1} = -14 \rightarrow x-1 = -14x-14 \rightarrow 15x = -13 \rightarrow x = -\frac{13}{15}$$

(34) $\frac{x-1}{x+1} = 15$

$$\frac{x-1}{x+1} = 15 \rightarrow x-1 = 15x+15 \rightarrow -14x = 16 \rightarrow x = -\frac{8}{7}$$

(35) $\frac{x-1}{x+1} = -15$

$$\frac{x-1}{x+1} = -15 \rightarrow x-1 = -15x-15 \rightarrow 16x = -14 \rightarrow x = -\frac{7}{8}$$

(36) $\frac{x-1}{x+1} = 16$

$$\frac{x-1}{x+1} = 16 \rightarrow x-1 = 16x+16 \rightarrow -15x = 17 \rightarrow x = -\frac{17}{15}$$

(37) $\frac{x-1}{x+1} = -16$

$$\frac{x-1}{x+1} = -16 \rightarrow x-1 = -16x-16 \rightarrow 17x = -15 \rightarrow x = -\frac{15}{17}$$

(38) $\frac{x-1}{x+1} = 17$

$$\frac{x-1}{x+1} = 17 \rightarrow x-1 = 17x+17 \rightarrow -16x = 18 \rightarrow x = -\frac{9}{8}$$

(39) $\frac{x-1}{x+1} = -17$

$$\frac{x-1}{x+1} = -17 \rightarrow x-1 = -17x-17 \rightarrow 18x = -16 \rightarrow x = -\frac{8}{9}$$

(40) $\frac{x-1}{x+1} = 18$

$$\frac{x-1}{x+1} = 18 \rightarrow x-1 = 18x+18 \rightarrow -17x = 19 \rightarrow x = -\frac{19}{17}$$

(41) $\frac{x-1}{x+1} = -18$

$$\frac{x-1}{x+1} = -18 \rightarrow x-1 = -18x-18 \rightarrow 19x = -17 \rightarrow x = -\frac{17}{19}$$

(42) $\frac{x-1}{x+1} = 19$

$$\frac{x-1}{x+1} = 19 \rightarrow x-1 = 19x+19 \rightarrow -18x = 20 \rightarrow x = -\frac{10}{9}$$

(43) $\frac{x-1}{x+1} = -19$

$$\frac{x-1}{x+1} = -19 \rightarrow x-1 = -19x-19 \rightarrow 20x = -18 \rightarrow x = -\frac{9}{10}$$

(44) $\frac{x-1}{x+1} = 20$

$$\frac{x-1}{x+1} = 20 \rightarrow x-1 = 20x+20 \rightarrow -19x = 21 \rightarrow x = -\frac{21}{19}$$

(45) $\frac{x-1}{x+1} = -20$

$$\frac{x-1}{x+1} = -20 \rightarrow x-1 = -20x-20 \rightarrow 21x = -19 \rightarrow x = -\frac{19}{21}$$

(46) $\frac{x-1}{x+1} = 21$

$$\frac{x-1}{x+1} = 21 \rightarrow x-1 = 21x+21 \rightarrow -20x = 22 \rightarrow x = -\frac{11}{10}$$

(47) $\frac{x-1}{x+1} = -21$

$$\frac{x-1}{x+1} = -21 \rightarrow x-1 = -21x-21 \rightarrow 22x = -20 \rightarrow x = -\frac{10}{11}$$

(48) $\frac{x-1}{x+1} = 22$

$$\frac{x-1}{x+1} = 22 \rightarrow x-1 = 22x+22 \rightarrow -21x = 23 \rightarrow x = -\frac{23}{21}$$

(49) $\frac{x-1}{x+1} = -22$

$$\frac{x-1}{x+1} = -22 \rightarrow x-1 = -22x-22 \rightarrow 23x = -21 \rightarrow x = -\frac{21}{23}$$

(50) $\frac{x-1}{x+1} = 23$

$$\frac{x-1}{x+1} = 23 \rightarrow x-1 = 23x+23 \rightarrow -22x = 24 \rightarrow x = -\frac{12}{11}$$

(51) $\frac{x-1}{x+1} = -23$

$$\frac{x-1}{x+1} = -23 \rightarrow x-1 = -23x-23 \rightarrow 24x = -22 \rightarrow x = -\frac{11}{12}$$

(52) $\frac{x-1}{x+1} = 24$

$$\frac{x-1}{x+1} = 24 \rightarrow x-1 = 24x+24 \rightarrow -23x = 25 \rightarrow x = -\frac{25}{23}$$

(53) $\frac{x-1}{x+1} = -24$

$$\frac{x-1}{x+1} = -24 \rightarrow x-1 = -24x-24 \rightarrow 25x = -23 \rightarrow x = -\frac{23}{25}$$

(54) $\frac{x-1}{x+1} = 25$

$$\frac{x-1}{x+1} = 25 \rightarrow x-1 = 25x+25 \rightarrow -24x = 26 \rightarrow x = -\frac{13}{12}$$

(55) $\frac{x-1}{x+1} = -25$

$$\frac{x-1}{x+1} = -25 \rightarrow x-1 = -25x-25 \rightarrow 26x = -24 \rightarrow x = -\frac{12}{13}$$

(56) $\frac{x-1}{x+1} = 26$

$$\frac{x-1}{x+1} = 26 \rightarrow x-1 = 26x+26 \rightarrow -25x = 27 \rightarrow x = -\frac{27}{25}$$

(57) $\frac{x-1}{x+1} = -26$

$$\frac{x-1}{x+1} = -26 \rightarrow x-1 = -26x-26 \rightarrow 27x = -25 \rightarrow x = -\frac{25}{27}$$

(58) $\frac{x-1}{x+1} = 27$

$$\frac{x-1}{x+1} = 27 \rightarrow x-1 = 27x+27 \rightarrow -26x = 28 \rightarrow x = -\frac{14}{13}$$

(59) $\frac{x-1}{x+1} = -27$

$$\frac{x-1}{x+1} = -27 \rightarrow x-1 = -27x-27 \rightarrow 28x = -26 \rightarrow x = -\frac{13}{14}$$

(60) $\frac{x-1}{x+1} = 28$

$$\frac{x-1}{x+1} = 28 \rightarrow x-1 = 28x+28 \rightarrow -27x = 29 \rightarrow x = -\frac{29}{27}$$

(61) $\frac{x-1}{x+1} = -28$

$$\frac{x-1}{x+1} = -28 \rightarrow x-1 = -28x-28 \rightarrow 29x = -27 \rightarrow x = -\frac{27}{29}$$

(62) $\frac{x-1}{x+1} = 29$

$$\frac{x-1}{x+1} = 29 \rightarrow x-1 = 29x+29 \rightarrow -28x = 30 \rightarrow x = -\frac{15}{14}$$

(63) $\frac{x-1}{x+1} = -29$

$$\frac{x-1}{x+1} = -29 \rightarrow x-1 = -29x-29 \rightarrow 30x = -28 \rightarrow x = -\frac{14}{15}$$

(64) $\frac{x-1}{x+1} = 30$

$$\frac{x-1}{x+1} = 30 \rightarrow x-1 = 30x+30 \rightarrow -29x = 31 \rightarrow x = -\frac{31}{29}$$

(65) $\frac{x-1}{x+1} = -30$

$$\frac{x-1}{x+1} = -30 \rightarrow x-1 = -30x-30 \rightarrow 31x = -29 \rightarrow x = -\frac{29}{31}$$

(66) $\frac{x-1}{x+1} = 31$

$$\frac{x-1}{x+1} = 31 \rightarrow x-1 = 31x+31 \rightarrow -30x = 32 \rightarrow x = -\frac{16}{15}$$

(67) $\frac{x-1}{x+1} = -31$

$$\frac{x-1}{x+1} = -31 \rightarrow x-1 = -31x-31 \rightarrow 32x = -30 \rightarrow x = -\frac{15}{16}$$

(68) $\frac{x-1}{x+1} = 32$

$$\frac{x-1}{x+1} = 32 \rightarrow x-1 = 32x+32 \rightarrow -31x = 33 \rightarrow x = -\frac{33}{31}$$

(69) $\frac{x-1}{x+1} = -32$

$$\frac{x-1}{x+1} = -32 \rightarrow x-1 = -32x-32 \rightarrow 33x = -31 \rightarrow x = -\frac{31}{33}$$

(70) $\frac{x-1}{x+1} = 33$

$$\frac{x-1}{x+1} = 33 \rightarrow x-1 = 33x+33 \rightarrow -32x = 34 \rightarrow x = -\frac{17}{16}$$

(71) $\frac{x-1}{x+1} = -33$

$$\frac{x-1}{x+1} = -33 \rightarrow x-1 = -33x-33 \rightarrow 34x = -32 \rightarrow x = -\frac{16}{17}$$

(72) $\frac{x-1}{x+1} = 34$

$$\frac{x-1}{x+1} = 34 \rightarrow x-1 = 34x+34 \rightarrow -33x = 35 \rightarrow x = -\frac{35}{33}$$

(73) $\frac{x-1}{x+1} = -34$

$$\frac{x-1}{x+1} = -34 \rightarrow x-1 = -34x-34 \rightarrow 35x = -33 \rightarrow x = -\frac{33}{35}$$

(74) $\frac{x-1}{x+1} = 35$

$$\frac{x-1}{x+1} = 35 \rightarrow x-1 = 35x+35 \rightarrow -34x = 36 \rightarrow x = -\frac{18}{17}$$

(75) $\frac{x-1}{x+1} = -35$

$$\frac{x-1}{x+1} = -35 \rightarrow x-1 = -35x-35 \rightarrow 36x = -34 \rightarrow x = -\frac{17}{18}$$

(76) $\frac{x-1}{x+1} = 36$

$$\frac{x-1}{x+1} = 36 \rightarrow x-1 = 36x+36 \rightarrow -35x = 37 \rightarrow x = -\frac{37}{35}$$

(77) $\frac{x-1}{x+1} = -36$

$$\frac{x-1}{x+1} = -36 \rightarrow x-1 = -36x-36 \rightarrow 37x = -35 \rightarrow x = -\frac{35}{37}$$

(78) $\frac{x-1}{x+1} = 37$

$$\frac{x-1}{x+1} = 37 \rightarrow x-1 = 37x+37 \rightarrow -36x = 38 \rightarrow x = -\frac{19}{18}$$

(79) $\frac{x-1}{x+1} = -37$

$$\frac{x-1}{x+1} = -37 \rightarrow x-1 = -37x-37 \rightarrow 38x = -36 \rightarrow x = -\frac{18}{19}$$

(80) $\frac{x-1}{x+1} = 38$

$$\frac{x-1}{x+1} = 38 \rightarrow x-1 = 38x+38 \rightarrow -37x = 39 \rightarrow x = -\frac{39}{37}$$

(81) $\frac{x-1}{x+1} = -38$

$$\frac{x-1}{x+1} = -38 \rightarrow x-1 = -38x-38 \rightarrow 39x = -37 \rightarrow x = -\frac{37}{39}$$

(82) $\frac{x-1}{x+1} = 39$

$$\frac{x-1}{x+1} = 39 \rightarrow x-1 = 39x+39 \rightarrow -38x = 40 \rightarrow x = -\frac{20}{19}$$

(83) $\frac{x-1}{x+1} = -39$

$$\frac{x-1}{x+1} = -39 \rightarrow x-1 = -39x-39 \rightarrow 40x = -38 \rightarrow x = -\frac{19}{20}$$

(84) $\frac{x-1}{x+1} = 40$

$$\frac{x-1}{x+1} = 40 \rightarrow x-1 = 40x+40 \rightarrow -39x = 41 \rightarrow x = -\frac{41}{39}$$

(85) $\frac{x-1}{x+1} = -40$

$$\frac{x-1}{x+1} = -40 \rightarrow x-1 = -40x-40 \rightarrow 41x = -39 \rightarrow x = -\frac{39}{41}$$

(86) $\frac{x-1}{x+1} = 41$

$$\frac{x-1}{x+1} = 41 \rightarrow x-1 = 41x+41 \rightarrow -40x = 42 \rightarrow x = -\frac{21}{20}$$

(87) $\frac{x-1}{x+1} = -41$

$$\frac{x-1}{x+1} = -41 \rightarrow x-1 = -41x-41 \rightarrow 42x = -40 \rightarrow x = -\frac{20}{21}$$

(88) $\frac{x-1}{x+1} = 42$

$$\frac{x-1}{x+1} = 42 \rightarrow x-1 = 42x+42 \rightarrow -41x = 43 \rightarrow x = -\frac{43}{41}$$

(89) $\frac{x-1}{x+1} = -42$

$$\frac{x-1}{x+1} = -42 \rightarrow x-1 = -42x-42 \rightarrow 43x = -41 \rightarrow x = -\frac{41}{43}$$

(90) $\frac{x-1}{x+1} = 43$

$$\frac{x-1}{x+1} = 43 \rightarrow x-1 = 43x+43 \rightarrow -42x = 44 \rightarrow x = -\frac{22}{21}$$

(91) $\frac{x-1}{x+1} = -43$

$$\frac{x-1}{x+1} = -43 \rightarrow x-1 = -43x-43 \rightarrow 44x = -42 \rightarrow x = -\frac{21}{22}$$

(92) $\frac{x-1}{x+1} = 44$

$$\frac{x-1}{x+1} = 44 \rightarrow x-1 = 44x+44 \rightarrow -43x = 45 \rightarrow x = -\frac{45}{43}$$

(93) $\frac{x-1}{x+1} = -44$

$$\frac{x-1}{x+1} = -44 \rightarrow x-1 = -44x-44 \rightarrow 45x = -43 \rightarrow x = -\frac{43}{45}$$

(94) $\frac{x-1}{x+1} = 45$

$$\frac{x-1}{x+1} = 45 \rightarrow x-1 = 45x+45 \rightarrow -44x = 46 \rightarrow x = -\frac{23}{22}$$

(95) $\frac{x-1}{x+1} = -45$

$$\frac{x-1}{x+1} = -45 \rightarrow x-1 = -45x-45 \rightarrow 46x = -44 \rightarrow x = -\frac{22}{23}$$

(96) $\frac{x-1}{x+1} = 46$

$$\frac{x-1}{x+1} = 46 \rightarrow x-1 = 46x+46 \rightarrow -45x = 47 \rightarrow x = -\frac{47}{45}$$

(97) $\frac{x-1}{x+1} = -46$

$$\frac{x-1}{x+1} = -46 \rightarrow x-1 = -46x-46 \rightarrow 47x = -45 \rightarrow x = -\frac{45}{47}$$

(98) $\frac{x-1}{x+1} = 47$

$$\frac{x-1}{x+1} = 47 \rightarrow x-1 = 47x+47 \rightarrow -46x = 48 \rightarrow x = -\frac{24}{23}$$

(99) $\frac{x-1}{x+1} = -47$

$$\frac{x-1}{x+1} = -47 \rightarrow x-1 = -47x-47 \rightarrow 48x = -46 \rightarrow x = -\frac{23}{24}$$

(100) $\frac{x-1}{x+1} = 48$

$$\frac{x-1}{x+1} = 48 \rightarrow x-1 = 48x+48 \rightarrow -47x = 49 \rightarrow x = -\frac{49}{47}$$

(101) $\frac{x-1}{x+1} = -48$

$$\frac{x-1}{x+1} = -48 \rightarrow x-1 = -48x-48 \rightarrow 49x = -47 \rightarrow x = -\frac{47}{49}$$

(102) $\frac{x-1}{x+1} = 49$

$$\frac{x-1}{x+1} = 49 \rightarrow x-1 = 49x+49 \rightarrow -48x = 50 \rightarrow x = -\frac{25}{24}$$

(103) $\frac{x-1}{x+1} = -49$

$$\frac{x-1}{x+1} = -49 \rightarrow x-1 = -49x-49 \rightarrow 50x = -48 \rightarrow x = -\frac{24}{25}$$

(104) $\frac{x-1}{x+1} = 50$

$$\frac{x-1}{x+1} = 50 \rightarrow x-1 = 50x+50 \rightarrow -49x = 51 \rightarrow x = -\frac{51}{49}$$

(105) $\frac{x-1}{x+1} = -50$

$$\frac{x-1}{x+1} = -50 \rightarrow x-1 = -50x-50 \rightarrow 51x = -49 \rightarrow x = -\frac{49}{51}$$

(106) $\frac{x-1}{x+1} = 51$

$$\frac{x-1}{x+1} = 51 \rightarrow x-1 = 51x+51 \rightarrow -50x = 52 \rightarrow x = -\frac{26}{25}$$

(107) $\frac{x-1}{x+1} = -51$

$$\frac{x-1}{x+1} = -51 \rightarrow x-1 = -51x-51 \rightarrow 52x = -50 \rightarrow x = -\frac{25}{26}$$

(108) $\frac{x-1}{x+1} = 52$

$$\frac{x-1}{x+1} = 52 \rightarrow x-1 = 52x+52 \rightarrow -51x = 53 \rightarrow x = -\frac{53}{51}$$

(109) $\frac{x-1}{x+1} = -52$

$$\frac{x-1}{x+1} = -52 \rightarrow x-1 = -52x-52 \rightarrow 53x = -51 \rightarrow x = -\frac{51}{53}$$

(110) $\frac{x-1}{x+1} = 53$

$$\frac{x-1}{x+1} = 53 \rightarrow x-1 = 53x+53 \rightarrow -52x = 54 \rightarrow x = -\frac{27}{26}$$

(111) $\frac{x-1}{x+1} = -53$

$$\frac{x-1}{x+1} = -53 \rightarrow x-1 = -53x-53 \rightarrow 54x = -52 \rightarrow x = -\frac{26}{27}$$

(112) $\frac{x-1}{x+1} = 54$

$$\frac{x-1}{x+1} = 54 \rightarrow x-1 = 54x+54 \rightarrow -53x = 55 \rightarrow x = -\frac{55}{53}$$

(113) $\frac{x-1}{x+1} = -54$

$$\frac{x-1}{x+1} = -54 \rightarrow x-1 = -54x-54 \rightarrow 55x = -53 \rightarrow x = -\frac{53}{55}$$

(114) $\frac{x-1}{x+1} = 55$

$$\frac{x-1}{x+1} = 55 \rightarrow x-1 = 55x+55 \rightarrow -54x = 56 \rightarrow x = -\frac{28}{27}$$

(115) $\frac{x-1}{x+1} = -55$

$$\frac{x-1}{x+1} = -55 \rightarrow x-1 = -55x-55 \rightarrow 56x = -54 \rightarrow x = -\frac{27}{28}$$

(116) $\frac{x-1}{x+1} = 56$

$$\frac{x-1}{x+1} = 56 \rightarrow x-1 = 56x+56 \rightarrow -55x = 57 \rightarrow x = -\frac{57}{55}$$

(117) $\frac{x-1}{x+1} = -56$

$$\frac{x-1}{x+1} = -56 \rightarrow x-1 = -56x-56 \rightarrow 57x = -55 \rightarrow x = -\frac{55}{57}$$

(118) $\frac{x-1}{x+1} = 57$

$$\frac{x-1}{x+1} = 57 \rightarrow x-1 = 57x+57 \rightarrow -56x = 58 \rightarrow x = -\frac{29}{28}$$

(119) $\frac{x-1}{x+1} = -57$

$$\frac{x-1}{x+1} = -57 \rightarrow x-1 = -57x-57 \rightarrow 58x = -56 \rightarrow x = -\frac{28}{29}$$

(120) $\frac{x-1}{x+1} = 58$

$$\frac{x-1}{x+1} = 58 \rightarrow x-1 = 58x+58 \rightarrow -57x = 59 \rightarrow x = -\frac{59}{57}$$

(121) $\frac{x-1}{x+1} = -58$

$$\frac{x-1}{x+1} = -58 \rightarrow x-1 = -58x-58 \rightarrow 59x = -57 \rightarrow x = -\frac{57}{59}$$

(122) $\frac{x-1}{x+1} = 59$

$$\frac{x-1}{x+1} = 59 \rightarrow x-1 = 59x+59 \rightarrow -58x = 60 \rightarrow x = -\frac{30}{29}$$

(123) $\frac{x-1}{x+1} = -59$

$$\frac{x-1}{x+1} = -59 \rightarrow x-1 = -59x-59 \rightarrow 60x = -58 \rightarrow x = -\frac{29}{30}$$

(124) $\frac{x-1}{x+1} = 60$

$$\frac{x-1}{x+1} = 60 \rightarrow x-1 = 60x+60 \rightarrow -59x = 61 \rightarrow x = -\frac{61}{59}$$

(125) $\frac{x-1}{x+1} = -60$

$$\frac{x-1}{x+1} = -60 \rightarrow x-1 = -60x-60 \rightarrow 61x = -59 \rightarrow x = -\frac{59}{61}$$

(126) $\frac{x-1}{x+1} = 61$

$$\frac{x-1}{x+1} = 61 \rightarrow x-1 = 61x+61 \rightarrow -60x = 62 \rightarrow x = -\frac{31}{30}$$

(127) $\frac{x-1}{x+1} = -61$

$$\frac{x-1}{x+1} = -61 \rightarrow x-1 = -61x-61 \rightarrow 62x = -60 \rightarrow x = -\frac{30}{31}$$

(128) $\frac{x-1}{x+1} = 62$

$$\frac{x-1}{x+1} = 62 \rightarrow x-1 = 62x+62 \rightarrow -61x = 63 \rightarrow x = -\frac{63}{61}$$

(129) $\frac{x-1}{x+1} = -62$

$$\frac{x-1}{x+1} = -62 \rightarrow x-1 = -62x-62 \rightarrow 63x = -61 \rightarrow x = -\frac{61}{63}$$

(130) $\frac{x-1}{x+1} = 63$

$$\frac{x-1}{x+1} = 63 \rightarrow x-1 = 63x+63 \rightarrow -62x = 64 \rightarrow x = -\frac{32}{31}$$

(131) $\frac{x-1}{x+1} = -63$

$$\frac{x-1}{x+1} = -63 \rightarrow x-1 = -63x-63 \rightarrow 64x = -62 \rightarrow x = -\frac{31}{32}$$

(132) $\frac{x-1}{x+1} = 64$

$$\frac{x-1}{x+1} = 64 \rightarrow x-1 = 64x+64 \rightarrow -63x = 65 \rightarrow x = -\frac{65}{63}$$

(133) $\frac{x-1}{x+1} = -64$

$$\frac{x-1}{x+1} = -64 \rightarrow x-1 = -64x-64 \rightarrow 65x = -63 \rightarrow x = -\frac{63}{65}$$

(134) $\frac{x-1}{x+1} = 65$

$$\frac{x-1}{x+1} = 65 \rightarrow x-1 = 65x+65 \rightarrow -64x = 66 \rightarrow x = -\frac{33}{32}$$

(135) $\frac{x-1}{x+1} = -65$

$$\frac{x-1}{x+1} = -65 \rightarrow x-1 = -65x-65 \rightarrow 66x = -64 \rightarrow x = -\frac{32}{33}$$

(136) $\frac{x-1}{x+1} = 66$

$$\frac{x-1}{x+1} = 66 \rightarrow x-1 = 66x+66 \rightarrow -65x = 67 \rightarrow x = -\frac{67}{65}$$

(137) $\frac{x-1}{x+1} = -66$

$$\frac{x-1}{x+1} = -66 \rightarrow x-1 = -66x-66 \rightarrow 67x = -65 \rightarrow x = -\frac{65}{67}$$

(138) $\frac{x-1}{x+1} = 67$

$$\frac{x-1}{x+1} = 67 \rightarrow x-1 = 67x+67 \rightarrow -66x = 68 \rightarrow x = -\frac{34}{33}$$

(139) $\frac{x-1}{x+1} = -67$

$$\frac{x-1}{x+1} = -67 \rightarrow x-1 = -67x-67 \rightarrow 68x = -66 \rightarrow x = -\frac{33}{34}$$

(140) $\frac{x-1}{x+1} = 68$

$$\frac{x-1}{x+1} = 68 \rightarrow x-1 = 68x+68 \rightarrow -67x = 69 \rightarrow x = -\frac{69}{67}$$

(141) $\frac{x-1}{x+1} = -68$

$$\frac{x-1}{x+1} = -68 \rightarrow x-1 = -68x-68 \rightarrow 69x = -67 \rightarrow x = -\frac{67}{69}$$

(142) $\frac{x$