

$y = f(x)$

x	$-r$	0	r	a
$f(x)$	$-r$	0	r	0
x	$-r$	0	r	a

$y = \sqrt{x} f(x)$ $x \cdot f(x) \geq 0$ $D_c = [-r, 0] \cup [r, a]$

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x	$-r$	0	r	a
$f(x)$	$-r$	0	r	0
x	$-r$	0	r	a

$D_c = (-r, 0) \cup (r, a)$

$P(x) = xP(r) = x^r - rx + \varepsilon$

$\underline{x=r}, P(r) = xP(r) = r^r - r + \varepsilon$
 $-P(r) = -r \quad P(r) = -r$

$\underline{x=-r}, P(-r) = xP(r) = (-r)^r + r + \varepsilon$
 $P(-r) = 1^r - r = 1 - r$ $P(-r) = 1$

$P(x) = \begin{cases} x - \sqrt{x+1} & ; x \geq 1 \\ x+1 & , x \leq 1 \end{cases}$

$P(0) \rightarrow 0 - \sqrt{0+1} = -1$
 $P(1) \rightarrow 1 + 1 = 2$
 $P(0) \rightarrow 0 - 1 = -1$

$P(P(0)) = P(-1)$ $P(P(1)) = P(2)$

$f(x-1) - f(x) = 4x + 2$

$f(x-1) = a(x-1)^r - b(x-1) + r$
 $f(x-1) = a(x^r - rx + 1) - bx + b + r$
 $f(x-1) = ax^r - rax + a - bx + b + r$

$f(x) = ax^r - bax + a - bx + b + r$
 $f(x) = ax^r - bax + a - bx + b + r$

$-rax + a + b = 4x + 2$
 $-rax = 4x \quad [a = -4]$

$-r + b = 2 \quad [b = 4] \quad [a - b = -4 - 4 = -8]$

$f(x) = \frac{x^r + \varepsilon x + \Delta}{x^r + \varepsilon x + V}$ $f(\sqrt{r}-r) = \frac{(\sqrt{r}-r)^r + r(\sqrt{r}-r) + \Delta}{(\sqrt{r}-r)^r + r(\sqrt{r}-r) + V} = \frac{(-1 + r - r\sqrt{r} + r\sqrt{r} - \Delta) + \Delta}{-1 + V} = \frac{r}{r} = 1$	2 6 $\frac{r}{r}$
$x - \frac{1}{x} = -r$ $x(x - \frac{1}{x}) = -rx$ $x^2 - 1 = -rx$ $x^2 + rx - 1 = 0$ $\Delta = 9 - 4(1)(-1) = 9 + 4 = 13$ $x = \frac{-r \pm \sqrt{13}}{2}$ $\frac{x^r}{x^r} + \frac{1}{x^r} = x^r + \frac{1}{x^r}$ $x = \frac{-r + \sqrt{13}}{2} \quad x^r = \left[\frac{-r + \sqrt{13}}{2} \right]^r = \frac{(9 + 13) - 9\sqrt{13}}{2} \rightarrow \frac{11 - 9\sqrt{13}}{2}$ $\left(x - \frac{1}{x}\right)^r = 9$ $x^r + \frac{1}{x^r} - r = 9$ $x^r + \frac{1}{x^r} = 11$	11 - 9\sqrt{13} 2 11
$1) \frac{f}{g} = \left\{ \left(1, \frac{0}{10}\right), \left(1, \frac{1}{11}\right), \left(0, \frac{r}{r}\right) \right\}$ $f(x) = \sqrt{9 - x^r}$ $\sqrt{9 - x} = \sqrt{0} \quad \sqrt{9 - x} = 3$ $\sqrt{9 - 1} = \sqrt{8} \quad \sqrt{9 - 8} = 1$ $g(x) = \left\{ \left(1, \sqrt{8}\right), \left(1, \sqrt{1}\right), \left(0, 3\right) \right\}$	2 3
$f(x) = \{(r, 1), (r, \varepsilon), (-2, r), (1, -r)\}$ $2) f(x) = \{(r, r), (r, 1), (-2, r), (1, -r)\}$ $3) f(x) + 1 = \{(r, r), (r, \Delta), (-2, r), (1, -1)\}$ $4) 3f(x) + 1 = \{(r, r), (r, 4), (-2, 4), (1, 4)\}$ $5) f(rx) = \left\{ \left(1, 1\right), \left(\frac{r}{r}, r\right), \left(-\frac{2}{r}, r\right), \left(\frac{1}{r}, -r\right) \right\}$	9 2
$g(x) = \{(1, 0), (1, 1), (-1, r), (r, -1)\}$ $f(x) = \{(r, r), (r, r), (1, r), (r, 1), (\Delta, r)\}$ $6) f \cdot g = \{(1, r), (r, r), (r, r)\}$ $7) \frac{rf}{g} = \left\{ \left(1, \frac{1}{r}\right), \left(r, \frac{r}{r}\right), \left(r, -r\right) \right\}$	10 2