

$$x^r f(x+1) \geq 0 \rightarrow x = 0, r ?$$

$$f(x+1) = \left(\frac{1}{r}\right)^{x-r} - 1 \Rightarrow x=1 \Rightarrow [0, 1] \checkmark$$

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$$f(-x) = \sqrt{-x + |r-x|} \rightarrow |r-x| \geq x \rightarrow r-x \geq x \rightarrow r \geq 2x \Rightarrow 1 \geq x = D_{f(-x)} \checkmark$$

$$r-x \leq -x \rightarrow r \leq 0$$

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$$f(x) = 0 \rightarrow r, r, -f$$

$$x-1 = 0 \rightarrow x=1$$

$-f$	1	r	r
$-$	$+$	$-$	$+$
$-$	$+$	$-$	$-$

$$D = (-f, 1] \cup (r, r) \checkmark$$

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-f

$$f(x) \geq f\left(\frac{r}{x}\right) \rightarrow f(x) = f\left(\frac{r}{x}\right) \rightarrow \frac{r^r + r x^r}{x^r} = x^r + x \rightarrow x=r$$

$$D = [r, +\infty)$$

$$\frac{r}{-} +$$

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$$f(r) \rightarrow r(1)^r - 1 = 1 \quad f(1) \rightarrow r(r)^r - 1 = v \Rightarrow v + \frac{r}{1} = 1 \checkmark$$

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$$\left. \begin{aligned} f(x) &\Rightarrow x^r - r x^{r-1} + r x - 1 + 1 \rightarrow (x-r)^r + 1 \rightarrow (\sqrt[r]{r})^r + 1 = 1 \\ g(x) &\Rightarrow x^r + r x^{r-1} + r x - 1 - r \rightarrow (x+r)^r - r \rightarrow v - r v = -r \end{aligned} \right\}$$

$$\frac{g}{f} = \frac{-r}{1} = -r \checkmark$$

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$$f(x) = \frac{x+r}{(x-r)(x-r)} \rightarrow D = \mathbb{R} - \{1, r\} \cap D_g \Rightarrow \left[\left(1, \frac{1}{r}\right) \cup (r, +\infty) \right) \checkmark$$

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10- (1, \sqrt{2})

ا) $\left\{ \left(-\frac{1}{4}, 2 \right) (2, 2) \left(\frac{5}{4}, -1 \right) \left(\frac{1}{4}, 2 \right) \right\}$ ✓

ب) $\left\{ (2, 2) (\pm\sqrt{2}, -1) (\pm 1, 2) \right\}$ ✓

ج) $\left\{ (-2, 19) (1, 3) (3, 9) (-1, 1) \right\}$ ✓

د) $\left\{ (13, -1) (1, -\frac{1}{13}) \right\}$