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$$Df_{(1)} = [-r, r]$$

1. (as 0, 1, 2, 3, 4, 5, 6, 7, 8, 9)

$$Df\left(\frac{rx+r}{\Delta}\right) \rightarrow r \leq \frac{rx+r}{\Delta} \leq r \rightarrow -1 \leq rx+r \leq r \rightarrow -1 \leq rx \leq 1 \rightarrow -1 \leq x \leq 1$$

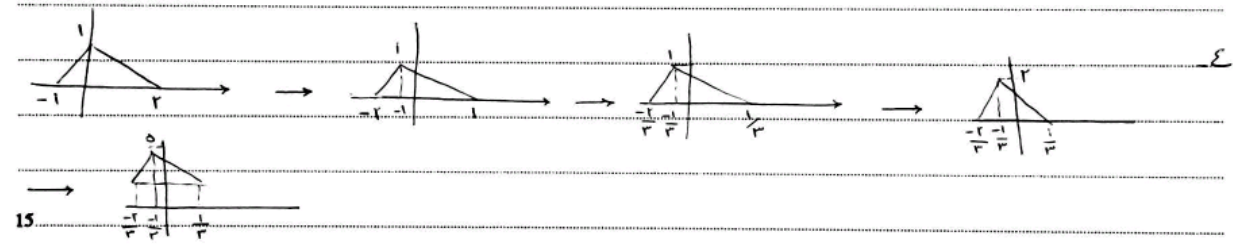
$$Df\left(\frac{rx+r}{\Delta}\right) = [-1, 1]$$

$$5. Df(rx-r) = [-r, r] \rightarrow -r \leq x \leq r \rightarrow -1 \leq rx \leq 1 \rightarrow -1 \leq rx-r \leq 1 \rightarrow Df(rx-r) = [-1, 1]$$

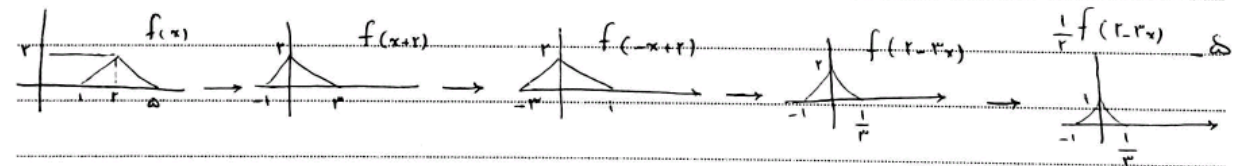
$$Df\left(\frac{rx+1}{r}\right) = [-1, r] \rightarrow -1 \leq x \leq r \rightarrow -r \leq rx+1 \leq 1 \rightarrow -1 \leq \frac{rx+1}{r} \leq r$$

$$Df(rx) = -1 \leq r-0x \leq 1 \rightarrow -r \leq -0x \leq r \rightarrow -\frac{r}{0} \leq x \leq \frac{r}{0} \rightarrow Df(rx) = \left[-\frac{r}{0}, \frac{r}{0}\right]$$

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$$20. y = \frac{-1}{r}(x-1)^2 + 1 = \frac{-x^2}{r} + \frac{2x}{r} - \frac{1}{r} + 1 = \frac{-x^2}{r} + \frac{2x}{r} + \frac{r-1}{r} \rightarrow x^2 - 2x + (r-1) = 0$$

$$y = a(x-1)^2 + c \xrightarrow{x=r} a = -1 \rightarrow (x-1)^2 + 1 = f(x)$$

$$y = 1 - rf(rx+r) = 1 - r(-(rx+1)^2 + 1) = 1 + r(rx+1)^2 - 1 = r(rx+1)^2$$

$$25. = r(ax^2 + 4x + 1) - 1 = 1ax^2 + 4rx - 1$$

$$\alpha = \frac{-1r}{r^2} = -\frac{1}{r} \quad \beta = \frac{-4}{ra} = \frac{4}{r} \quad \alpha\beta = -\frac{4}{r^2}$$

$$Df_{(1)} = [a, c] \quad Dg_{(1)} = [-1, b] \quad y = f(x-1) + g(x+1) \rightarrow D = [r, \Delta]$$

$$Df_{(r-1)} = (a+1, \Delta] \quad Dg_{(r+1)} = [r, b-1) \quad \alpha \cap \beta = (a+1, b-1)$$

$$30. \quad a = -r \quad b = 4 \rightarrow a-b = -9$$

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$$y = f\left(\frac{x}{r} + 1\right) \quad Df\left(\frac{x}{r} + 1\right) = [-r, \Delta] \quad -\frac{r}{r} + 1 \leq \frac{x}{r} + 1 \leq \frac{\Delta}{r} + 1 \quad \dots 9$$

$$-\frac{1}{r} \leq \frac{x}{r} + 1 \leq \frac{\Delta}{r}$$

$$Df(rf(x) - r) = \left[-\frac{1}{r}, \frac{\Delta}{r}\right]$$

$$5 \quad rf(x) = [-1, r] \rightarrow -\Delta \leq rf(x) - r \leq 1 \rightarrow |rf(x) - r| \leq \Delta$$

$$0 \leq \sqrt{|rf(x) - r|} \leq \sqrt{\Delta}$$

$$\Rightarrow rf = [\Delta, \sqrt{\Delta}]$$

$$f(x) = \left| \frac{x+1}{rx+1} \right| \rightarrow g(x) = \left| \frac{(x-r)+1}{r(x-r)+1} \right| + 1 = \left| \frac{x-1}{rx-r} \right| + 1 \quad \dots 10$$

$$10 \quad \frac{|x-1|}{|rx-r|} + x+1 < 0 \rightarrow 1 < x < \frac{r}{r} \rightarrow x+1 < \frac{x-1}{rx-r} \rightarrow \frac{rx^2 - rx + r}{rx-r} > 0 \quad X$$

$$\Delta < 0$$

$$x < 1, x > \frac{r}{r} \rightarrow \frac{rx^2 - \varepsilon}{rx-r} \rightarrow \frac{-\sqrt{r} \quad \sqrt{r} \quad \frac{r}{r}}{-\left| \begin{array}{c} + \\ - \\ + \end{array} \right|} \quad (-\infty, -\sqrt{r})$$

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