

پ. آریسمه

$$y = \sqrt{nf(n)} \quad nf(n) \geq 0 \quad nf(n) = 0 \Rightarrow n = 0, 1 \quad \text{و آفلد}$$

$$\begin{array}{cccc} -1 & 0 & 1 & 2 \\ - & + & - & + \\ - & 0 & - & 0 \end{array}$$

$$D_f = [-1, 0] \cup [1, 2]$$

✓ (۲)

$$x = \sqrt{\frac{-n}{f(n)}} \geq \frac{-n}{f(n)} \geq 0 \quad \frac{-n}{f(n)} = 0 \quad n = 0, -2, 0, 2, 1 \quad \text{اضافه}$$

$$\begin{array}{cccc} -2 & 0 & 1 & 2 \\ - & + & - & + \\ - & 0 & - & 0 \end{array}$$

$$D_f = (-2, 0) \cup (0, 2)$$

✓ (۲)

$$-2, -1, 1$$

(۳)

$$f(n) - 2f(2) = n^2 - 2n + 2 \xrightarrow{n=2} f(2) - 2f(2) = 4 - 4 + 2 = 2$$

$$-f(2) = 2 \quad f(2) = -2 \quad f(-2) = n^2 - 2n + 2 + 2f(2) = 4 + 4 + 2 - 4 = 10$$

✓ (۲)

$$f(f(1)) = f(1) \xrightarrow{n=1} 2 \times 1 + 2 = 4 \quad f(4) = 4 - \sqrt{4} = 2$$

$$f(f(4)) = f(4) \xrightarrow{n=4} 4 - \sqrt{4+4} = 2 \quad f(2) = 2 + 2 = 4$$

$$4 + 2 = 6$$

✓ (۲)

$$f(0) = 0 \times 0 - 0 \times 0 + 2 = 0 - 0 + 2 = 2$$

$$f(0) - f(1) = 2 - 1 = 1 \xrightarrow{n=1} 2 - (0 - 0 + 2) = (2 \times 1) + 2$$

$$2 - 0 + 0 - 2 = 0 \quad -0 + 0 = 0 \quad -(0 - 0) = 0 \quad 0 - 0 = 0$$

✓ (۲)

$$0 - 0 = 0$$

$$\frac{r f(r) + f(-1)}{f^r(r)} = \frac{r(9-9+1) + (1+r+1)}{(8-5+1)^r} = \frac{r+2}{1} = \boxed{V}$$

(v) ✓

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$$\frac{r f(r) - r f(-r)}{f(r)} = r f(r) = r \times (r \times r + 1) = r^3$$

$$\begin{aligned} r f(-r) &= r(-r)^r = 1 & n < r \\ f(r) &= r \times r + 1 = V & n \geq r \end{aligned}$$

$$\frac{r^3 - 1}{V} = \boxed{\frac{r^3 - 1}{V}}$$

(v) ✓

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$$\frac{f(f(r)) - f(f(-r))}{f(r) - r} = \frac{f(f(r)) - f(f(-r))}{f(r) - r}$$

$$f(f(r)) = f(1) = 9 \quad f(f(-r)) = f(1) = 9$$

$$f(f(r)) = f(1) = 9 \quad f(r) - r = 9 - r = 8$$

$$\frac{9 - 9}{8} = \boxed{0}$$

(v) ✓

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$$f(\sqrt{r}-r) = \frac{(\sqrt{r}-r)^r + f(\sqrt{r}-r) + 9}{(\sqrt{r}-r)^r + f(\sqrt{r}-r) + 2} = \frac{r + 8 - 8\sqrt{r} + 8\sqrt{r} - 1 + 9}{r + 8 - 8\sqrt{r} + 8\sqrt{r} - 1 + 2} = \frac{1}{8} = r$$

$$f(r) = \frac{f + (8 \times r) + 9}{f + (8 \times r) + 2} = \boxed{\frac{r}{1}}$$

(v) ✓

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$$(f(\sqrt{n}))^r = (\sqrt{n}^r + \frac{1}{\sqrt{n}^r})^r = (n + \frac{1}{n})^r = n^r + \frac{1}{n^r} + r$$

$$f(n) = n^r + \frac{1}{n^r}$$

$$(n^r + \frac{1}{n^r} + r) - (n^r + \frac{1}{n^r}) = \boxed{r}$$

(v) ✓

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