

$$\sqrt{f(u) - u + 1}$$

$$f(u) - u + 1 \geq 0 \quad D_f = \mathbb{R} - (-\infty, -1)$$

(1)

$$\frac{r^2 u^r + r^2 u^{r+1} + 1 \Lambda u + r}{(r^2 u^r + r^2 u^{r+1})^r} = \frac{r^2 (\Lambda u^r + 1 r u^r + r u + 1)}{((r u + 1)^r)^r} = \frac{r^2 (r u + 1)^{r+1}}{(r u + 1)^{r^2}} = \frac{r^2}{r u + 1}$$

$$r u + 1 = 0 \rightarrow u = -\frac{1}{r} \quad D_f = \mathbb{R} - \left\{ -\frac{1}{r} \right\}$$

(2)

$$u \xrightarrow{\text{وحد}} u = r \quad \frac{u^r + r u^r - u - r}{u^r - 1} = \frac{r}{r} = \frac{u + C}{r} \rightarrow r + C = r \rightarrow C = r$$

(3)

$$u = \begin{cases} 1 \rightarrow \frac{a+r}{1+b} = \frac{u+C}{1+r} \rightarrow \frac{a+r}{b+1} = r \rightarrow \begin{cases} r b + r = a + r \\ -a - b = -r \end{cases} \rightarrow \begin{cases} a = \frac{r}{r} \\ b = \frac{1}{r} \end{cases} \\ -1 \rightarrow \frac{-a+r}{b-1} = -1+r \rightarrow -a+r = b-1 \rightarrow \begin{cases} r b + r = a + r \\ -a - b = -r \end{cases} \rightarrow \begin{cases} a = \frac{r}{r} \\ b = \frac{1}{r} \end{cases} \end{cases}$$

$$b + C = \frac{1}{r} + r = \left(\frac{r}{r} \right)$$

(4)

$$f(u+1) = (u-r)^r (u) \rightarrow (u^r + r - r u)(u) = u^r + r u - r u^r$$

$$f(1-u) = (-u-r)^r (-u) \rightarrow (u^r + r + r u)(-u) = -u^r - r u - r u^r \rightarrow f(u+1) + f(u-1) = -\Lambda u^r$$

(5)

(4)

$$f(-1) \rightarrow 1 - \sqrt{u} = -1 \rightarrow \underline{u=1} \rightarrow \sqrt[3]{u} \rightarrow \sqrt[3]{1} = \boxed{1}$$

$$f(r) \rightarrow 1 - \sqrt{u} = r \rightarrow u = -1 \rightarrow \sqrt[3]{u} + r \rightarrow \boxed{1} \rightarrow f(-1) + f(r) = \boxed{2}$$

(V)

$$f(y) \rightarrow u + \sqrt{u} = y \rightarrow \boxed{u=y^2} \quad f(y) = y \circ y + 1 = \boxed{y^2 + 1}$$

(A)

$$f(u-1) \rightarrow (u-1)^r + u - 1 \rightarrow u^r - 1 + r u - r u^r + u - 1$$

$$f(-u+1) \rightarrow (1-u)^r - u + 1 \rightarrow -u^r + 1 + r u^r - r u - u + 1 \rightarrow f(u-1) + f(1-u) = \underline{\underline{0}}$$

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