

السبيل من مركز

AD

الف) $f(n) = [-4, 2] \rightarrow f(3n-2) \rightarrow -4 < 3n-2 < 2 \rightarrow -2 < 3n < 4$ ①

$-\frac{2}{3} < n < \frac{4}{3} \rightarrow \underline{DP = [-\frac{2}{3}, \frac{4}{3}]}$ ✓

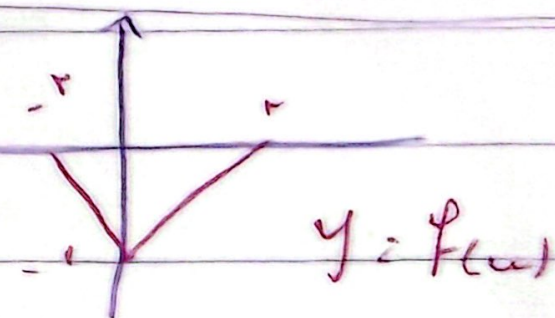
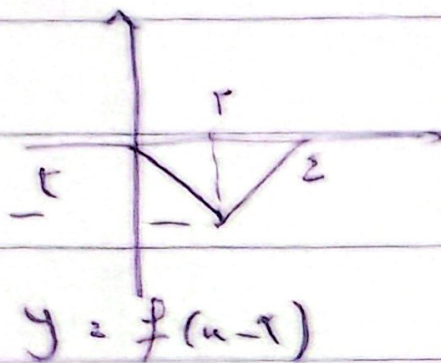
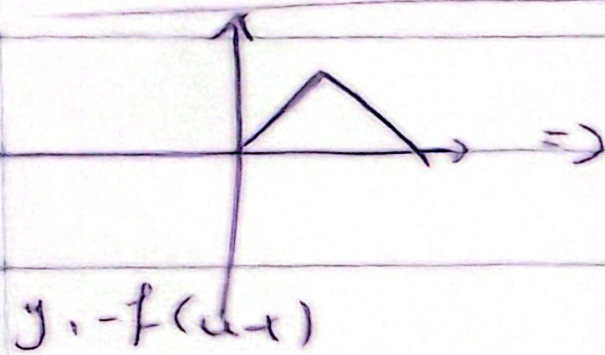
Y

① $Df(x, y) = [-1, -1] \quad Df = ?$

جواباً $f(-1) - f = \boxed{-1}$ $f(1) - f = \boxed{-1}$

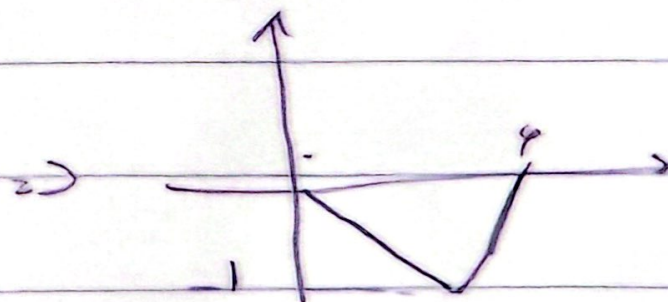
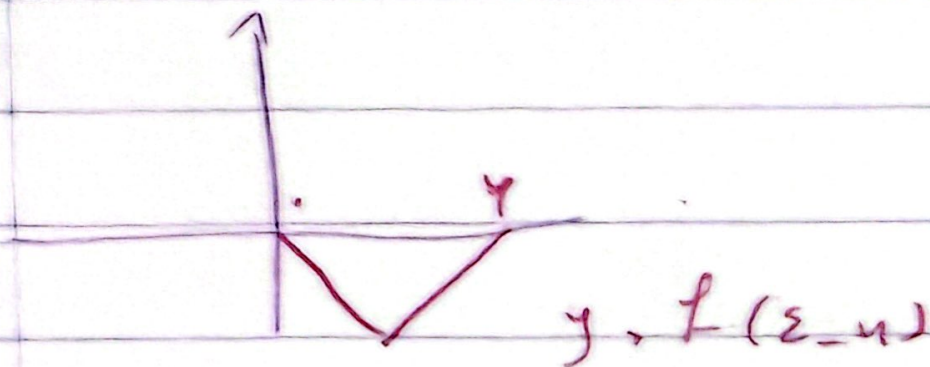
$Df = [-1, -1]$

①



(10)

(1,0)



$$Q = \begin{bmatrix} 1 & 4 \end{bmatrix}$$

sam

$$Dy = \sqrt{-(u+r)} f(ru-1)$$

$$\hookrightarrow u = -\frac{r}{r}$$

$$ru-1 = -1 \rightarrow u = 0$$

$$-1, r, \infty = f \text{ چوں که } \textcircled{4}$$

$$ru-1 = r \rightarrow u = \frac{r}{r} = 1 \quad ru-1 = \infty \rightarrow u = \frac{r}{r} = 1$$

$$Dy = [-r, 0) \cup [1, r] \checkmark$$

✓

$$f(u) = |ru - r| + 1 \rightarrow |r(u+k) - r| + 1 - r = |ru + rk - r| - r \textcircled{5}$$

$$|r_0 k + rk - r| - r = |r_0 k - r| + 1 \rightarrow |rk - r| = 4 \quad rk - r = 4$$

$$rk - r = -4 \quad |k = -\frac{r}{r}| \checkmark$$

✓

$$k = \frac{4}{r} \checkmark$$

$$f(u) = \frac{1-2u}{u+1} \xrightarrow{u \rightarrow \frac{1}{2}} \frac{1-\frac{2u}{r}}{\frac{u}{r}+1} = \frac{r-2u}{u+r} + k$$

①

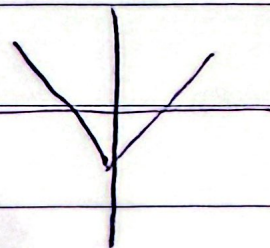


نکته: در صورتی که تابع را به صورت $y = \frac{a}{b-x} + k$ بنویسیم

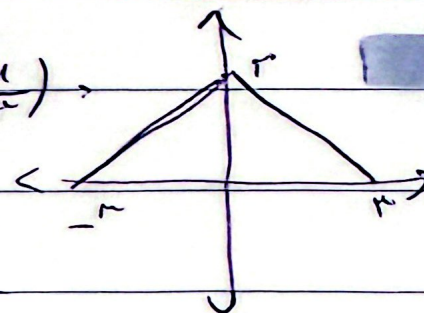
تا به راحتی بتوانیم به دست آوریم

②

$$y = -f\left(\frac{u}{r}\right) + r$$

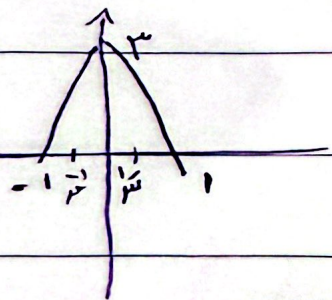


$$y = +f\left(\frac{u}{r}\right)$$

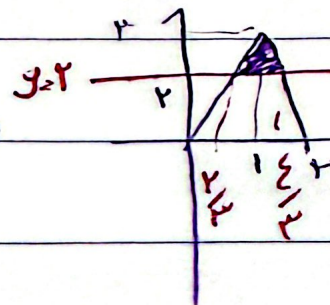


③

$$f(u)$$

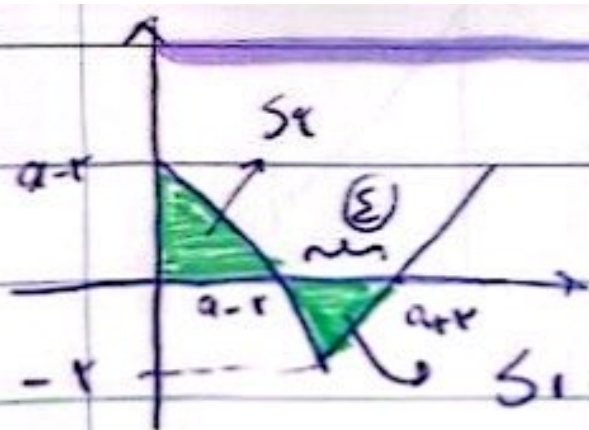


$\Rightarrow$



$$\text{So, } \frac{1}{r} \int_{-r/2}^{r/2} f\left(\frac{u}{r}\right) du = \left(\frac{1}{r}\right)$$

④



$$S_{\text{total}} = \frac{a}{r}$$

(10)

$$\frac{a}{r} = S_1 + S_2 \Rightarrow S_2 = \frac{1}{r}$$

$$S_1 = \frac{\epsilon \times r}{r} = \epsilon$$

$$\frac{(a-r)r}{r} = \frac{1}{r}$$

$$\begin{cases} a-r=1 \Rightarrow a=r \\ a-r=-1 \Rightarrow a=1 \end{cases}$$

$$f(a) = \left| \frac{1}{r} - r \right| - r = \frac{r}{r}$$

γ