

Subject:

Year.

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① $f(x) = |x - c| + 1$

② $\rightarrow |x(a+x) - c| + 1 \rightarrow |x^2 + ax - c| + 1 \rightarrow |x^2 + ax - c| - r$

$| -c | + 1 = | x^2 - r^2 | - r \rightarrow x^2 - c = r \rightarrow x = \pm \sqrt{r}$

$f(x) = \frac{x^2 - 1}{x + 1} \rightarrow \frac{x^2 + 1}{x + 1} \rightarrow \frac{-\frac{1}{x} + 1}{\frac{1}{x} + 1}$

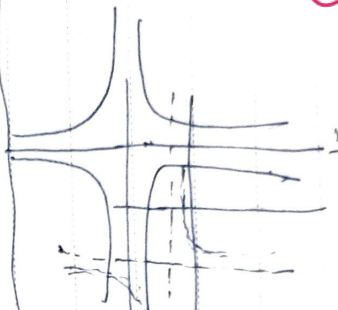
$(k - \frac{1}{2})x^2 - \frac{1}{2}(x)(k - 1) + \frac{1}{2}(k + 1) = 0$

① $\Delta = 0$ يعني $\rightarrow$ جذرين

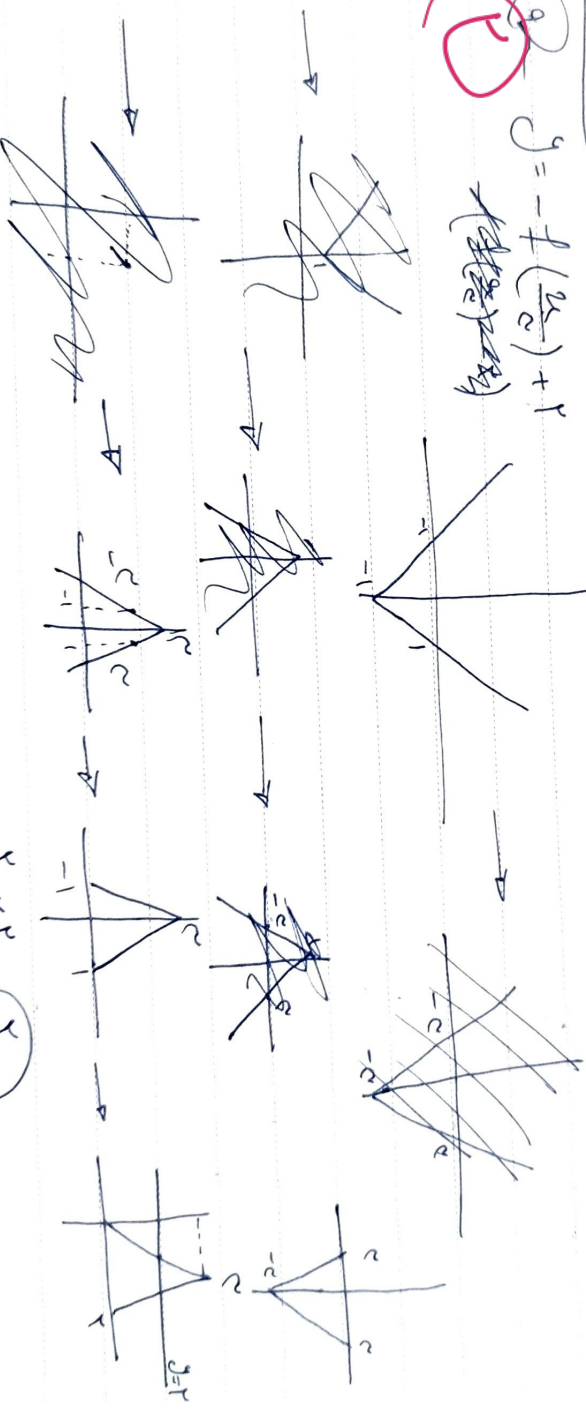
② $\Delta > 0$ $x < -1$ x

③ $\Delta > 0$ $x < -r$ x

④ $\Delta > 0$ $\rightarrow k \leq \frac{1}{2}$

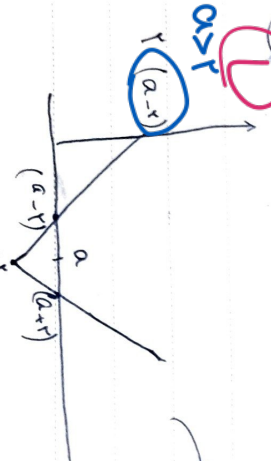


$g = -f(\frac{x}{2}) + r$



$\frac{x^2 - 1}{2} = \frac{1}{2}$

$f(x) = |x - a| - r$



$\frac{x^2 - 1}{2} + \frac{1}{2}(x - a) = \frac{1}{2} \rightarrow a = \frac{2}{r}$

$\frac{1}{r} - \frac{1}{2} = \frac{1}{2}$

$\frac{1}{10} - \frac{1}{2} = \frac{1}{10}$

$| \frac{1}{2} - \frac{2}{r} | - r$

$f(\frac{1}{r}) = |r - \frac{1}{r}| - r \rightarrow a - r < 1 \rightarrow a < r + 1$
 $a - r < 1 \rightarrow a < 1 + r$

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① $f(x) = [x, 2]$ $f(x-2)$

$$-x \leq x-2 \leq 2 \rightarrow -2 \leq x \leq 4$$

$$\left(\frac{-2}{2} \right) \leq x \leq \left(\frac{4}{2} \right)$$

$f(x-2) = [x, 2]$

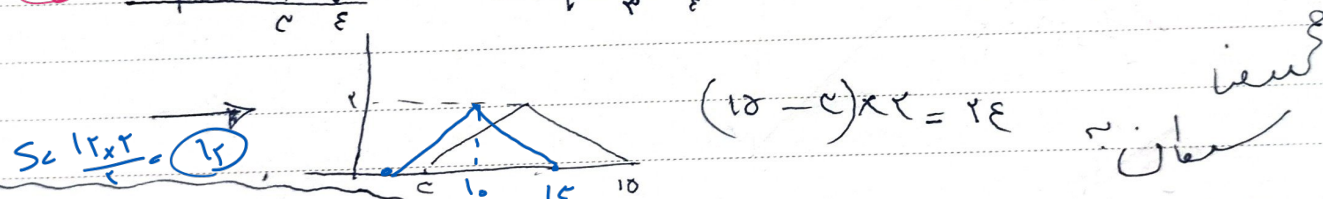
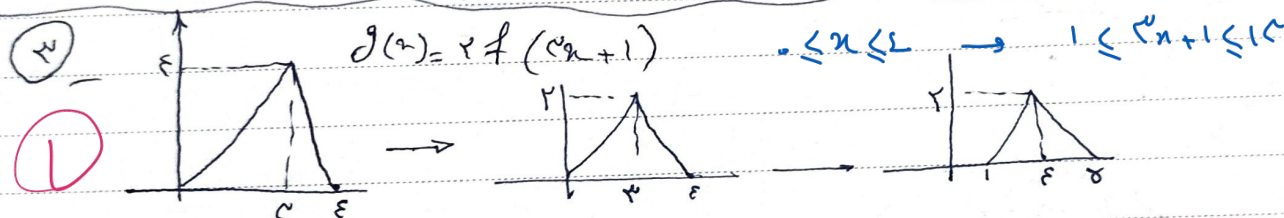
$$-x \leq x-2 \leq 2 \rightarrow -2 \leq x \leq 4$$

$$-1 \leq x-2 \leq -1$$

② $f(x) = x + \sqrt{x-2}$ $y = x-2 + \sqrt{x-2}$ $x-2 + \sqrt{x-2} = 2$

$\sqrt{x-2} - 2 = 0 \rightarrow x-2 = 4 \rightarrow x = 6$ $x = 10$

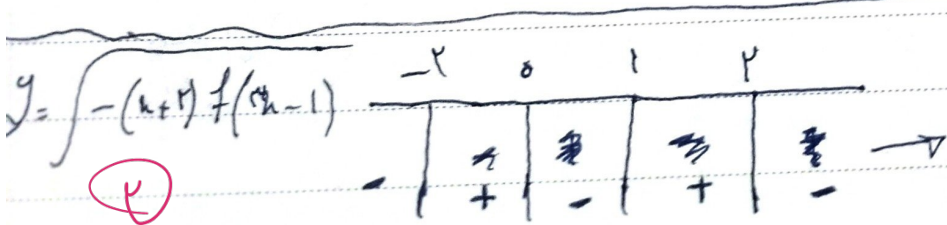
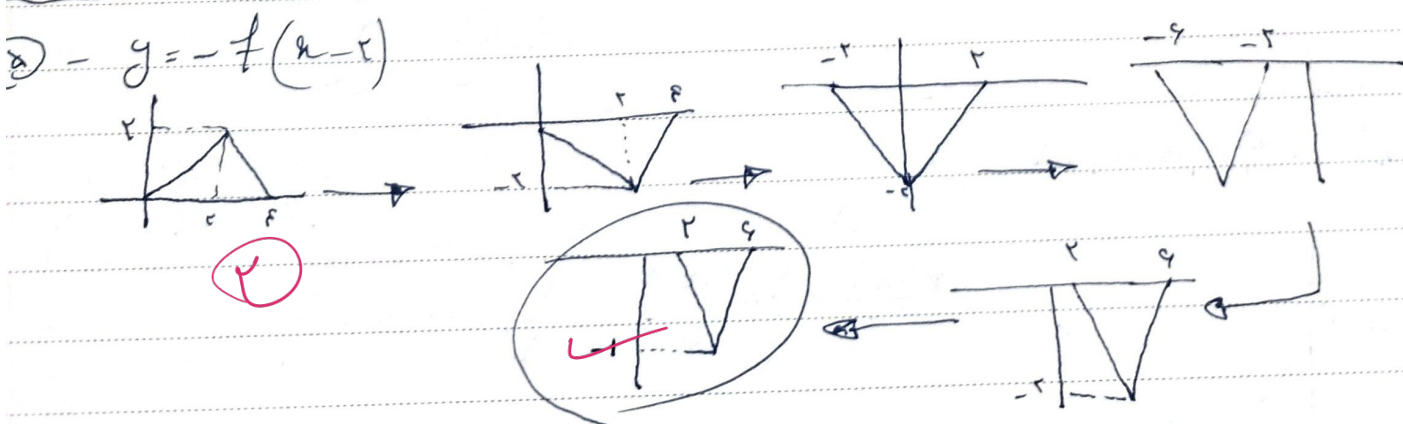
دقت عبارت به توان آخر رسد $x-2 \leq 2 \rightarrow x \leq 4$



④ $A(x, -c)$ $y = a + 2f\left(\frac{x-a}{2}\right)$ $\frac{x-a}{2} \leq 2 \rightarrow x \leq a+4$

$y = f(x)$ $\frac{y-a}{2} = -c \rightarrow y = a-4$

$y = 0 \rightarrow a-4 = 2a+4-4 \rightarrow a = -4$



$x \in [-2, 0] \cup [1, 2]$