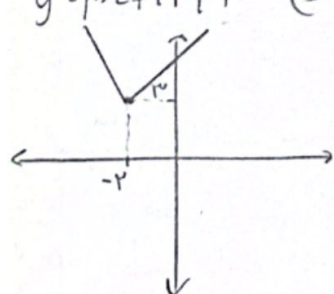
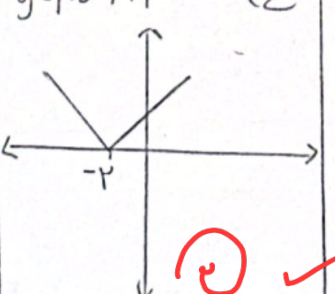
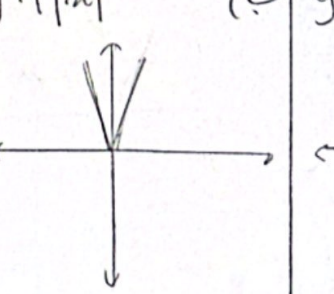
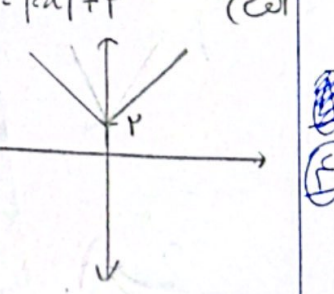
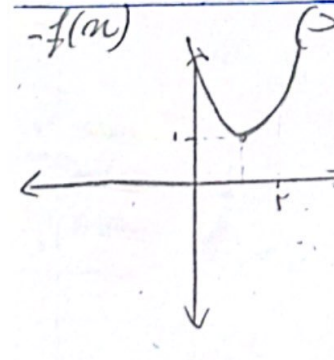
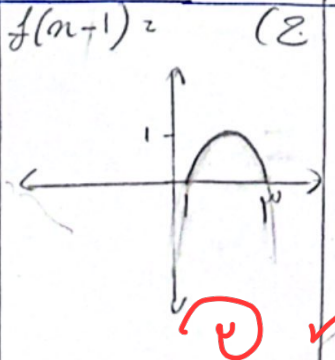
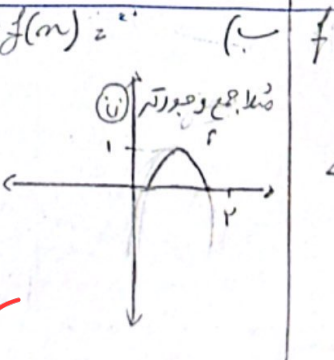
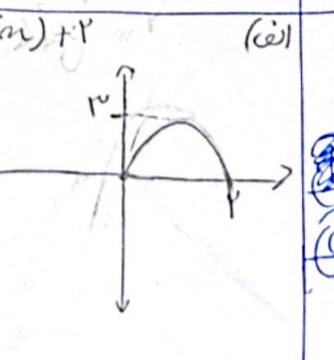


$x = \cos y$ $\downarrow$ $\sqrt{1-y^2}$ $10, 100$ $\text{تابع } X$ $\checkmark$ متقارن	$\sqrt{x-4} + y-2 = 0$ $\Rightarrow$ جواب $x=4, y=2$ $x=4$ $ y +1 = 4$ $y = \pm 3$ $\checkmark$ تابع	$ y + x^2 = x + 1^2$ $\checkmark$ متقارن $y^2 - m = 2m^2$ $y^2 = 2m^2 + m$ $\sqrt{y^2} = \sqrt{2m^2 + m}$ $y = \sqrt{2m^2 + m}$ $\checkmark$ تابع	(الف) $y = \frac{x+4}{x^2-4m}$ $\checkmark$ متقارن $m^2 - 4m = 0$ $m(m-4) = 0$ $m = 0, 4$ $D_f = \mathbb{R} - \{4, 0\}$ (2)
$y = \frac{x+4}{x^2-4m^2}$ $\checkmark$ متقارن $m^2 - 4m^2 = 0$ $m^2(m-4) = 0$ $m = 0, 4$ $D_f = \mathbb{R} - \{4, 0\}$ $\checkmark$	$y = \frac{x+4}{m^2+m+4}$ $\checkmark$ متقارن $\Delta = 1 - 4 \times 4 \times 1 = -15$ $\Delta < 0$ $D_f = \mathbb{R}$ $\checkmark$	$y = \frac{x+4}{x^2 - \sqrt{m+4}}$ $\checkmark$ متقارن $\Delta = 4 - 4 \times 1 \times 4 = -12$ $\Delta < 0$ $D_f = \mathbb{R}$ $\checkmark$	(الف) $y = \frac{x+4}{x^2-4m}$ $\checkmark$ متقارن $m^2 - 4m = 0$ $m(m-4) = 0$ $m = 0, 4$ $D_f = \mathbb{R} - \{4, 0\}$ (2)
$y = \frac{2m+1}{ x +x^2}$ $\checkmark$ متقارن $ x +x^2 = 0 \Rightarrow x=0$ $D_f = \mathbb{R} - \{0\}$ $\checkmark$	$y = \frac{\sqrt{x-2}}{x-4}$ $x-2 \geq 0 \Rightarrow x \geq 2$ $x-4 \neq 0 \Rightarrow x \neq 4$ $D_f = [2, +\infty) - \{4\}$ $\checkmark$	$y = \frac{2m+1}{m^2+1}$ $\checkmark$ متقارن $m^2+1 = 0 \Rightarrow$ هیچ جوابی ندارد $D_f = \mathbb{R}$ $\checkmark$	(الف) $y = \sqrt{4-x} + \sqrt{x+2}$ $\checkmark$ متقارن $\sqrt{4-x} \geq 0 \Rightarrow x \leq 4$ $\sqrt{x+2} \geq 0 \Rightarrow x \geq -2$ $D_f = [-2, 4]$ (3)
$y = x+2 + 1^2$ 	$y = x+2 $  $\checkmark$	$y = 2 x $ 	$y = x + 2$ 
$-f(x)$ 	$f(x+1)$  $\checkmark$	$f(x)$ 	$f(x)+2$ 

$$y = \frac{(n-2)(n-3)(n-4)}{(n-3)^2}$$

Roots: 2, 3, 4. Signs: +, -, -, +.

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✓

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Roots: 2, 3, 4. Signs: -, +, -, +.

✓

$$y = \frac{n^2 - 3n + 2}{n^2 - 5n + 2} = \frac{(n-2)(n-1)}{(n-3)(n-1)}$$

Roots: 1, 2, 3. Signs: +, -, +.

$$y = \frac{n^2 - 3n + 2}{n^2 - 5n + 2} = \frac{(n-2)(n-1)}{(n-3)(n-1)}$$

Roots: 1, 2, 3. Signs: +, -, +.

✓

$$y = \frac{n^2 + 3n + 2}{n^2 + 2n + 1}$$

$$y = \frac{n^2 - n^2}{n^2 + 2n + 1} = \frac{-n^2}{(n+1)(n-1)}$$

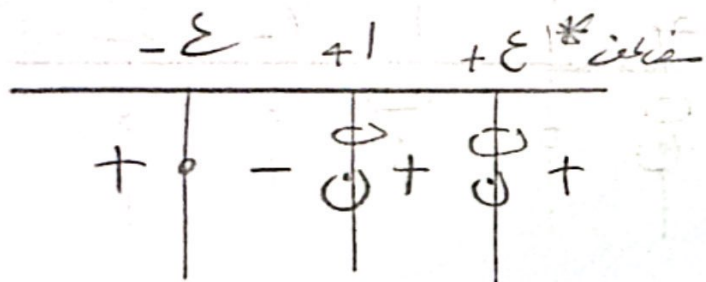
بازای $n=14$ عبارت + اند.
 هم نشانی هم $-N$ $9 - 5 \times 14 = -N$
 پس این Min در 14 و 15 و 16 را قطع نمی کند.
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 پس این Min در 14 و 15 و 16 را قطع نمی کند.

$$y = \frac{n^2 - n^2}{n^2 + 2n + 1} = \frac{-n^2}{(n+1)(n-1)}$$

Roots: -1, 1. Signs: +, -, +.

1/5

$$y = \sqrt{\frac{x^2 - 14}{x^2 - 8x + 8}} = \frac{\overbrace{(x+1)}^{-1} \overbrace{(x-1)}^{+1}}{\underbrace{(x-1)}_{+1} \underbrace{(x+1)}_{+1}}$$



$$D_f = (-\infty, 1] \cup (8, \infty) - \{4\}$$

$$y = \sqrt{\frac{x^3 - 1}{x^3 - 8}} = \frac{\overbrace{(x-1)}^{+1}}{\underbrace{(x-2)}_{-1} \underbrace{(x+1)}_{+1}}$$

Sign chart for $y = \sqrt{\frac{x^3 - 1}{x^3 - 8}}$:

Interval	Sign
$x < 1$	+
$1 < x < 2$	-
$x > 2$	+

$$D_f = (-\infty, 1) \cup (2, \infty) - \{4\}$$