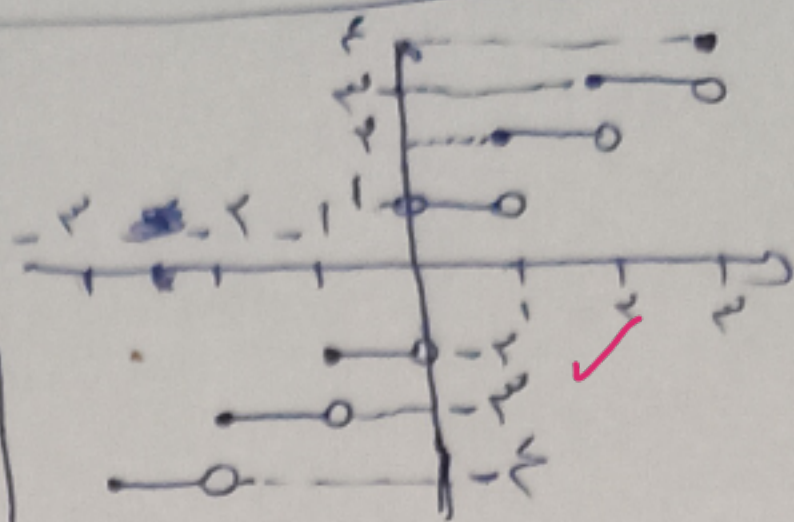
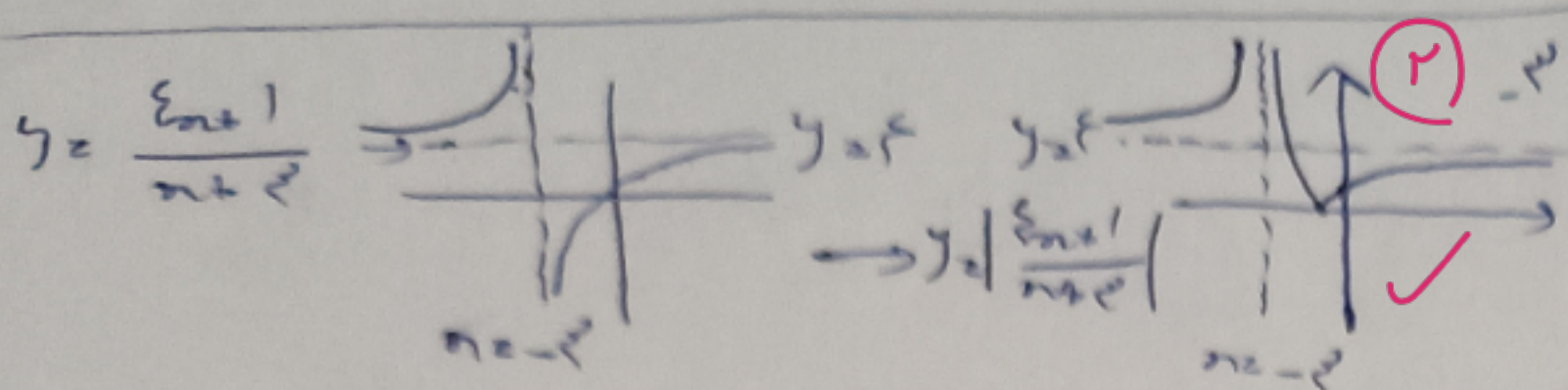


محمد شیرازی | ۱- انت (۲) ✓ $\sin^2 x \rightarrow 0 \rightarrow \sin^2 x \rightarrow 0 \rightarrow \sin^2 x \rightarrow 0$ ✓ $\cos^2 x \rightarrow 1 \rightarrow \cos^2 x \rightarrow 1 \rightarrow \cos^2 x \rightarrow 1$ ✓



۱۹، ۷۵

(۲) ✓

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

$n + \frac{1}{n} > 1 \rightarrow \sqrt{n+\frac{1}{n}} > 1$

$(\sqrt{n+\frac{1}{n}} + 1)^2 > 1 + 2 + 1 = 4$

$2 + 2\sqrt{n+\frac{1}{n}} - 1 > 2 + 2\sqrt{2} \rightarrow R_f = [2 + 2\sqrt{2}, +\infty)$

$y = -\sin^2 x \sin x + \sin^2 x \sin x = \sin x (1 - \sin^2 x) = \sin x \cos^2 x$

$\sin x = 1 \rightarrow 1 - 1 = 0$

$\frac{-b}{2a} = 1 \Rightarrow \sin x = 1 \rightarrow 1 - 1 = 0$

$R_f = [0, 1]$

$a \checkmark \quad \begin{cases} b+c=0 \\ b+c=1 \end{cases} \quad \begin{cases} b \geq 1 \\ c \leq 0 \end{cases}$

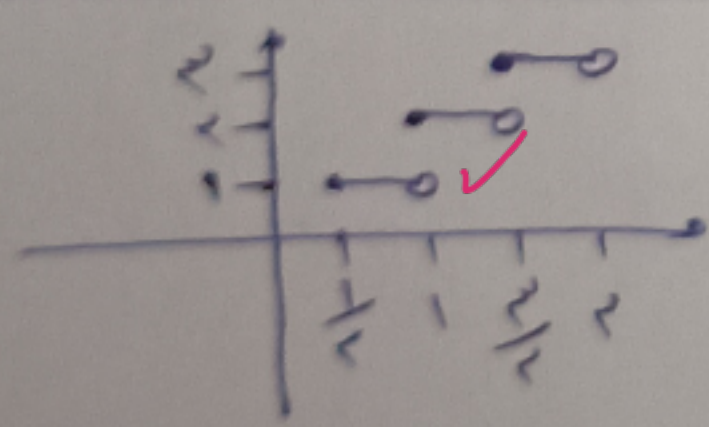
$g(x) = \sqrt{x^2 + 4} \rightarrow R_g = [2, +\infty)$ کامل بنویس

(۲) ✓

$\sqrt{(n-1)^2 + 4} = \sqrt{n^2 - 2n + 1 + 4} = \sqrt{n^2 - 2n + 5}$

$\Rightarrow y = n-2 > -1 \rightarrow n-2 > -1 \rightarrow n > 1$

$\Rightarrow R_g = [-1, 10]$



(۲) ✓

(۲) ✓

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

$x^2(x-1) = x^3 - x^2 = 0 \rightarrow x^2(x-1) = 0 \rightarrow x=0 \text{ or } x=1$

$\Rightarrow a = -1 \text{ and } b = 1$

$\frac{-b}{2a} = \frac{1}{-2} = -\frac{1}{2} \rightarrow f(-\frac{1}{2}) = 1 - \frac{1}{4} = \frac{3}{4}$

$f(-\frac{1}{2}) = f(-1) = 0$

۷- با توجه به دامنه، زیر رادیکال یک خط با شیب مثبت بوده یعنی $a=0$ است و نقطه $(2,0)$ هم در معادله خط صدق میکنند...

$\begin{cases} (2,0) \rightarrow 2b+c=0 \\ (3,1) \rightarrow 3b+c=1 \end{cases} \rightarrow b=1, c=-2$

$g(x) = \sqrt{x^2 + 4} \rightarrow \text{ext} \Big|_x \Rightarrow R_g = \sqrt{[4, +\infty)} = [2, +\infty)$