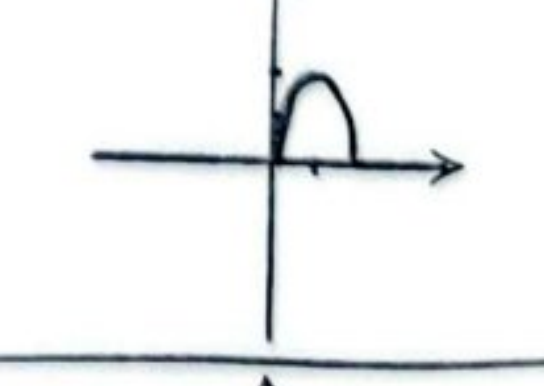
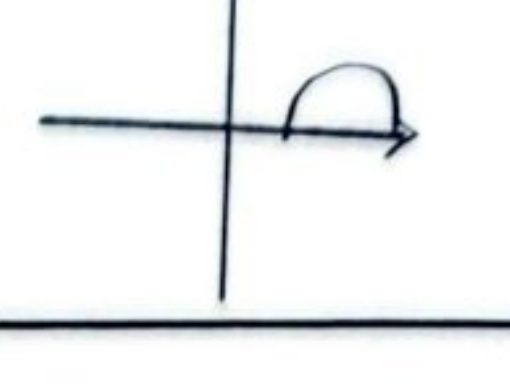
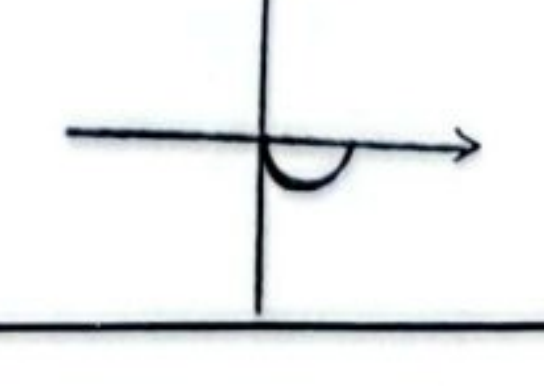
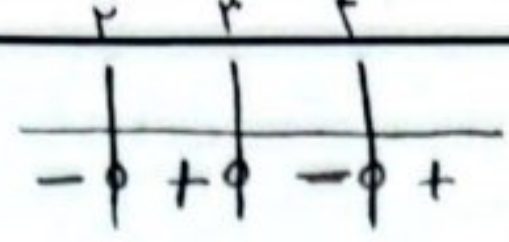
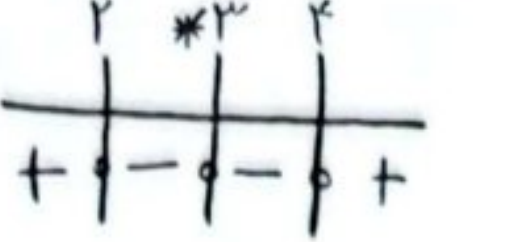
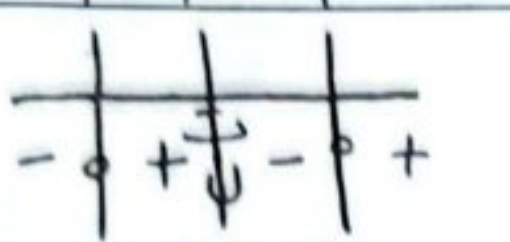
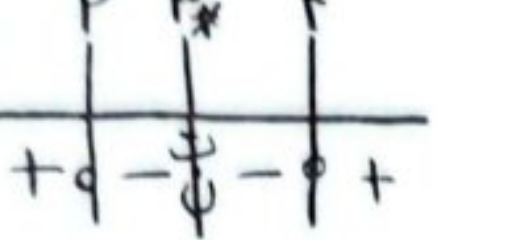
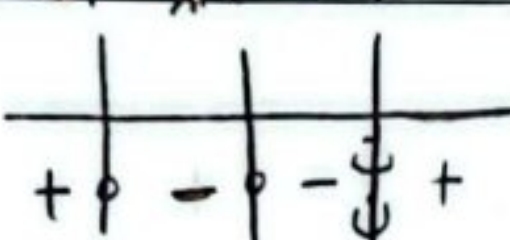
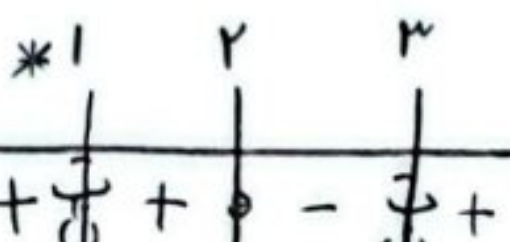
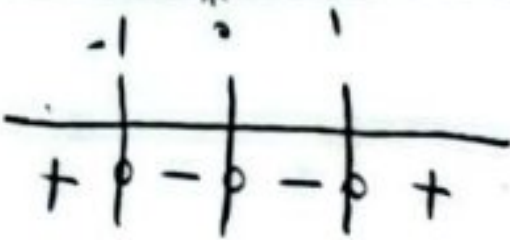
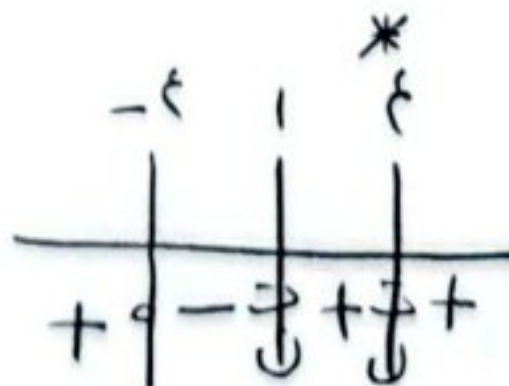


۱) $y^3 - x = 2x^2 \Rightarrow y = \sqrt[3]{2x^2 + x}$	تابع هست. /
۲) $ y + x^3 = x + 2 \xrightarrow{x=1} y + 1 = 1 + 2 \Rightarrow y = 2 \Rightarrow y = \pm 2$	تابع نیست. X
۳) $\sqrt{x-4} + y-2 = 0 \Rightarrow \sqrt{x-4} = 0 \Rightarrow x-4 = 0 \Rightarrow x=4 \quad y-2 = 0 \Rightarrow y-2 = 0 \Rightarrow y=2$	تابع هست. /
۴) $x = \cos y \xrightarrow{x=0} y = \frac{\pi}{2}, -\frac{\pi}{2}, \frac{3\pi}{2}, \dots$	تابع نیست. X

۱) $\frac{x+4}{x^2-4x} \Rightarrow x^2-4x \neq 0 \Rightarrow D_f = R - \{0, 4\}$	
۲) $\frac{x+4}{x^2-5x+4} \Rightarrow b^2-4ac \Rightarrow 49-4 = -15 < 0 \Rightarrow D_f = R$	دلتا منفی است، هیچگاه صفر نمی شود.
۳) $\frac{x+4}{x^2+x+4} \Rightarrow x^2+x+4 \neq 0 \Rightarrow \Delta = 1-16 = -15 \Delta < 0 \Rightarrow D_f = R$	منخرج چهاره نیست، دگرگانه صفر نمی شود.
۴) $\frac{x+4}{x^4-4x^2} \Rightarrow x^4-4x^2 \neq 0 \Rightarrow x^2(x^2-4) \neq 0 \Rightarrow x^2(x-2)(x+2) \neq 0 \Rightarrow D_f = R - \{-2, 0, 2\}$	

۱) $\sqrt{4-x} + \sqrt{x-2} \Rightarrow 4-x \geq 0 \Rightarrow x \leq 4, x-2 \geq 0 \Rightarrow x \geq 2 \Rightarrow 2 \leq x \leq 4 \Rightarrow D_f = [2, 4]$	
۲) $\frac{x^2+1}{x^2+1} \Rightarrow x^2+1 \geq 1 \Rightarrow D_f = R$	منخرج هدرگانه صفر نمی شود.
۳) $\frac{\sqrt{x-2}}{x-4} \Rightarrow x-2 \geq 0 \Rightarrow x \geq 2, x-4 \neq 0 \Rightarrow x \neq 4 \Rightarrow D_f = [2, +\infty) - \{4\}$	
۴) $\frac{x^2+3}{ x +x^2} \Rightarrow x +x^2 \neq 0 \Rightarrow x \neq 0 \Rightarrow D_f = R - \{0\}$	

۱) 	۲) 	(باریک تر می شود)
۳) 	۴) 	
۱) 	۲) 	
۳) 	۴) 	

1) $(x-2)(x-3)(x-5)$  2) $(x-2)(x-3)^2(x-5)$ 	4
1) $\frac{(x-2)(x-5)}{x-3} \Rightarrow$  2) $\frac{(x-2)(x-5)}{(x-3)^2} \Rightarrow$ 	7
1) $\frac{x^2-3x+2}{x-3} = \frac{(x-1)^2(x+2)}{x-3} \Rightarrow$  2) $\frac{x^2-3x+2}{x^2-5x+3} = \frac{(x-2)(x-1)}{(x-3)(x-1)} \Rightarrow$ 	1
1) $\frac{x^2-x^2}{x^2+x+2} = \frac{x^2(x^2-1)}{x^2+x+2} = \frac{x^2(x-1)(x+1)}{x^2+x+2}$ $b^2-4ac = 1-4 = -3$  چون Δ منفی است منفرج مست 2) $\frac{x^2+3x+2}{x^2+2x+3} = \frac{x^2+3x+2=0 \quad \Delta=9-4=-5}{x^2+2x+3=0 \quad \Delta=4-12=-8}$ حاصل مرتب، منفرج، دوباره مست است	9
1) $\sqrt{\frac{x^2-1}{x^2-x}} = \frac{x^2-1 \geq 0}{x^2-x > 0} \Rightarrow \frac{x^2 \geq 1}{x^2 > x} \Rightarrow \frac{x \geq 1}{x > 1} \Rightarrow D_f = [2, +\infty)$ 2) $\sqrt{\frac{x^2-14}{x^2-8x+4}} = \frac{(x-4)(x+4)}{(x-4)(x-1)}$  $D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$	10