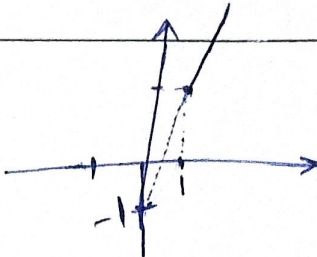
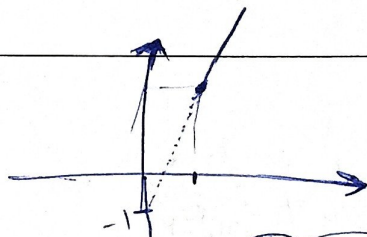
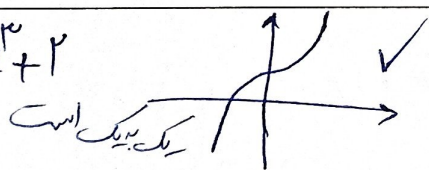


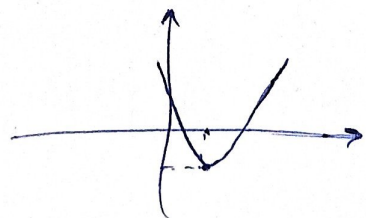
الف)  $(3, 2) = (3, n^2 - n) \Rightarrow 2 = n^2 - n \Rightarrow n(n-1) = 2 \Rightarrow \begin{cases} n=2 \checkmark \\ n=-1 \rightarrow \text{ح } \times \end{cases}$   
 $(3, 2) = (m, 3) \Rightarrow m=3$

ب)  $(2, 3) = (m, 3) \Rightarrow m=2 \Rightarrow (a, 2-1) = (-1, 1) \Rightarrow a=-1$   
 $\Rightarrow (-1+2, n) = (1, 2) \Rightarrow n=2$

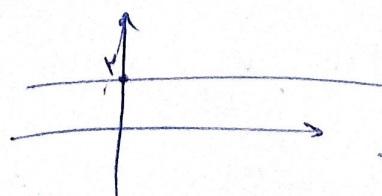
$f(x) = \begin{cases} 3x-1 & ; x \geq 1 \\ x+a & ; x < 1 \end{cases} \rightarrow$    
 $\Rightarrow 1+a < 2 \Rightarrow a < 1$

$f(x) = \begin{cases} 3x-1 & ; x \geq 1 \\ ax+a-1 & ; x \leq 0 \end{cases} \rightarrow$    
 $\Rightarrow a > 0 \Rightarrow a-1 < 2 \Rightarrow a < 3 \Rightarrow 0 < a < 3$

الف)  $y = x^3 + 2$    $\checkmark \Rightarrow x = y^{\frac{1}{3}} + 2 \Rightarrow y^{\frac{1}{3}} = x-2 \Rightarrow y = (x-2)^3$

ب)  $y = x^2 - 4x + 2$   
 $\rightarrow \begin{cases} x: 2 \\ y: -2 \end{cases}$    $\Rightarrow$  یک به یک نیست.

الف)  $y = \frac{3x+1}{x-2} \rightarrow$  غیررational  $\Rightarrow$  یک به یک است  $\Rightarrow x = \frac{3y+1}{y-2} \Rightarrow y = \frac{3x+1}{x-2}$   
 $ad \neq bc$

ب)  $\frac{4+2x}{x+2} = \frac{2(x+2)}{x+2} = 2 \rightarrow$    $\Rightarrow$  یک به یک نیست.

