

نام و نام خانوادگی: ..... پاسبان/پاسبان  
پاسخنامه تشریحی تکلیف شماره ۹... کلاس ۱۰... B.....

۱۸، ۷۵

الف)  $y = x^2 - 5 \rightarrow x^2 = y + 5 \rightarrow x = \pm \sqrt{y+5} \rightarrow y+5 \geq 0 \rightarrow y \geq -5$   
 $R_f \rightarrow [-5, +\infty)$  ✓

ب)  $x^3 = y - 1 \rightarrow x = \sqrt[3]{y-1} \rightarrow R_f = \mathbb{R}$  ✓

الف)  $y = x^2 - 4x + 4 \rightarrow y = (x-2)^2 \rightarrow y = (x-2)^2 + 2$   
 $(x-2)^2 = y - 2 \rightarrow x - 2 = \pm \sqrt{y-2} \rightarrow x = \pm \sqrt{y-2} + 2$   
 $y - 2 \geq 0 \rightarrow y \geq 2 \rightarrow R_f = [2, +\infty)$

ب)  $x^2 - 5x + 1 - y = 0 \rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \Delta \geq 0 \rightarrow 25 - 4(1-y) \geq 0$   
 $25 - 4 + 4y \geq 0 \rightarrow 21 + 4y \geq 0 \rightarrow 4y \geq -21 \rightarrow y \geq -\frac{21}{4}$   
 $R_f = [-\frac{21}{4}, +\infty)$  ✓

الف)  $y = x^2 - 2y = x^2 + 3 \rightarrow y = x^2 + 3 \rightarrow x^2 = y - 3 \rightarrow x = \pm \sqrt{y-3} \rightarrow y - 3 \geq 0 \rightarrow y \geq 3$   
 $R_f = [3, +\infty)$  ✓

ب)  $y = |x| - 4y = 2|x| + 1 \rightarrow y = 2|x| + 1 \rightarrow |x| = \frac{y-1}{2} \rightarrow x = \pm \frac{y-1}{2}$   
 $y - 1 \geq 0 \rightarrow y \geq 1$   
 $R_f = [1, +\infty)$  ✓

$y = x^2 - 4y = 1 \rightarrow y = x^2 - 4y - 1 = 0 \rightarrow x^2 = 5y + 1 \rightarrow x = \pm \sqrt{5y+1} \rightarrow 5y+1 \geq 0 \rightarrow y \geq -\frac{1}{5}$   
 $R_f = [-\frac{1}{5}, +\infty)$  ✓

Min  $\left| \frac{-(-4)}{2} = 2 \right|$   
 $R_f = [2, +\infty)$  ✓

Max  $\left| \frac{-b}{2a} = \frac{-4}{-2} = 2 \right|$   
 $R_f = (-\infty, 2]$  ✓

الف)  $y = \sqrt{x^2 - 4x + 4} \rightarrow \min \left| \frac{-b}{2a} = \frac{4}{2} = 2 \rightarrow 9 - 18 + 2 = -7 \right|$   
 $\sqrt{[-7, +\infty)} \Rightarrow R_f = [0, +\infty)$  ✓

ب)  $\sqrt{-x^2 + 4x + 10} \rightarrow \max \left| \frac{-b}{2a} \rightarrow \frac{-4}{-2} = 2 \right| \sqrt{(-\infty, 14]} \rightarrow R_f = [0, \sqrt{14}]$  ✓  
 $-4 + 10 = 14$   
 ارفاق  $R_f = [0, \sqrt{14}]$

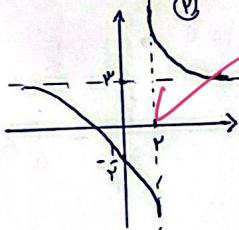
الف)  $\rightarrow$  بزرگترین توان  $\rightarrow R_f = \mathbb{R}$  ✓

ب)  $\rightarrow$  در زیر ارفاق  $\rightarrow R_f = [0, +\infty)$  ✓

الف)  $\rightarrow$  همگرافیه ارفاق  $= \mathbb{R} - \left\{ \frac{a}{c} \right\} \rightarrow R_f = \mathbb{R} - \{3\}$   
 $\downarrow \frac{3}{1} = 3$  ✓

ب)  $\rightarrow$  همگرافیه ارفاق  $= \mathbb{R} - \left\{ \frac{a}{c} \right\} \rightarrow \mathbb{R} - \{4\} \rightarrow$  زیر ارفاق  $\rightarrow R_f = [0, +\infty) - \{4\}$   
 $\downarrow \frac{4}{1} = 4$  ✓

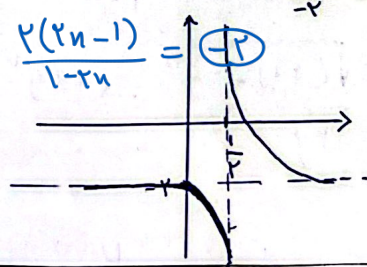
الف)  $y = \frac{3x+1}{x-2}$  (در  $x=2$  تعریف نشده)  $y = \frac{a}{c}$  تعریف شده



ب)  $y = \frac{4x-2}{1-2x} = \frac{2(2x-1)}{1-2x} = -2$   
 $y = -2$

ب)  $y = \frac{2x-2}{-2x+1}$

$-2x+1=0 \rightarrow x=\frac{1}{2}$   
 $\frac{f}{x} = -2$



الف)  $y = \cos^2 x + \frac{1}{\cos^2 x} \rightarrow a + \frac{1}{a} \geq 2 \Rightarrow R_f = [2, +\infty)$  ✓

ب)  $\sqrt[3]{x+1} \xrightarrow{-\frac{1}{2} + \infty} R_f = (-\infty, -2] \cup [2, +\infty)$

ارفاق در  $\frac{1}{2}$  روی مایه اعمال می شود  $R_f = (-\infty, -\sqrt[3]{2}] \cup [\sqrt[3]{2}, +\infty)$