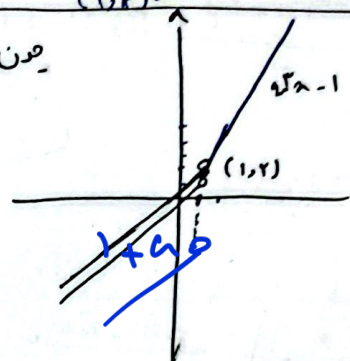
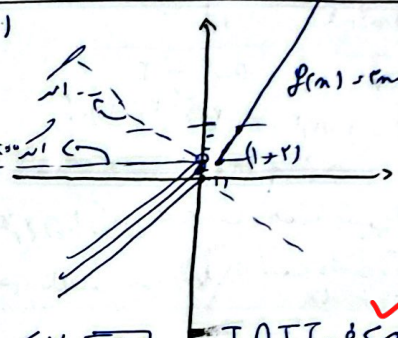


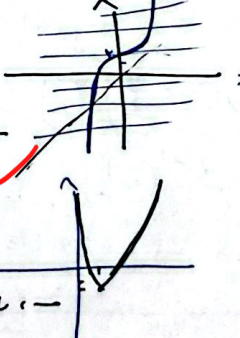
نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره کلاس: یازدهم B

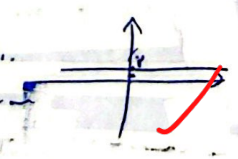
۱۸، ۷۵
 $(-1, 2), (3, 2), (3, 2), (3, 2), (3, 2)$

الف) $f = \{(-1, 2), (n, 2), (3, n^2 - n), (m, 2), (-1, 2)\}$ هم یک به یک یعنی هم تابع باشد
 $n^2 - n = 2 \Rightarrow n^2 - n - 2 = 0 \Rightarrow (n-2)(n+1) = 0 \Rightarrow n = 2 \text{ یا } n = -1$
 $n = 2$ ✓
 ب) $f = \{(a, 1), (-1, 1), (1, n), (n, 3)\}$ $q_1 = q_2 \Rightarrow a = -1$
 $I = \{(a, 1), (-1, 1), (1, n), (n, 3)\}$ $II = \{(m, 3), (2, 3)\}$ $q_1 = q_2 \Rightarrow m_1 = m_2 \Rightarrow m = 2$
 $n = 2$ ✓

فونکشن $f(m) = \begin{cases} m+1 & m \geq 1 \\ 1+a & m < 1 \end{cases}$ $1+a \leq 2$
 $I: R_{m-1} \cap R_{m+a} = \emptyset$


$f(m) = \begin{cases} m-1 & m \geq 1 \\ am+a-1 & m < 1 \end{cases}$ $R_{m-1} = [1, +\infty)$
 $I: a > 0$
 $II: R_{m-1} \neq R_{m+a-1}$ $R_{m+a-1} = (-\infty, a-1]$
 $a-1 < 1 \Rightarrow a < 2$


$y = x^2 + 2$ $\downarrow y = m$
 $m = y^2 + 2 \Rightarrow m - 2 = y^2 \Rightarrow \sqrt{m-2} = y = y^{-1} = \sqrt{m-2}$
 $f(m) = m^2 - 5m + 2$


$y = \frac{m+1}{m-2}$ $\Rightarrow m = \frac{y+1}{y-2}$
 $ny - 2m = y + 1 \Rightarrow ny - 2(\frac{y+1}{y-2}) = y + 1$
 $\Rightarrow y = \frac{y+1}{y-2}$


فرداری کنیم
 $f(m) = \sqrt{n-r}$
 $P: n-r > 0 \Rightarrow n > r$

$R_f^{-1} = [r, \infty)$ $f^{-1}(m) \Rightarrow y = \sqrt{n-r}$ $a = \sqrt{y-r} \Rightarrow a^2 = y-r \Rightarrow y = a^2 + r$ $y = a^2 + r$

$f^{-1}(m) = a^2 + r, a \in [r, \infty)$
 $\Rightarrow a^2 = y - r$
 $I: R_f^{-1} = [r, \infty)$
 $y = m^2 - 4m + 4 - 1 \Rightarrow y = (m-2)^2 - 1 \Rightarrow (m-2)^2 = y+1 \Rightarrow m-2 = \sqrt{y+1} \Rightarrow m = 2 \pm \sqrt{y+1}$

$f(m) = a + \sqrt{m} \Rightarrow y = a + \sqrt{m} \xrightarrow{m=t} y = a + \sqrt{t} \Rightarrow \sqrt{t} = y - a \Rightarrow t = (y-a)^2$

$t = -b \pm \sqrt{1+4y} \xrightarrow{t=m} \sqrt{m} = -b \pm \sqrt{1+4y}$ از اینجا که می‌آید $\sqrt{m} = -b + \sqrt{1+4y}$

$\sqrt{m} = -b + \sqrt{1+4y} \Rightarrow m = (-b + \sqrt{1+4y})^2$ $a^2b + c = 1 \Rightarrow r(1+r) + (1-r) = 1 \Rightarrow 1+r-1-r = -1$ $1+r-1-r = -1$

$n = 1 + 4y + 1 - 2\sqrt{1+4y} \Rightarrow n = 4y + 2 - 2\sqrt{1+4y} \Rightarrow 4y + 2 - 2\sqrt{1+4y} = x(y + \frac{1}{x}) \Rightarrow y + \frac{1}{x} = \frac{4y+2-2\sqrt{1+4y}}{x}$

$n = 4y + \frac{1}{y} - \sqrt{4y + \frac{1}{y}} \xrightarrow{y=\frac{1}{x}} n = 4\frac{1}{x} + x - \sqrt{4\frac{1}{x} + x} = a + b - \sqrt{a-b} \Rightarrow a = \frac{1}{x}, b = x$

$y = \frac{n}{m^2 - r} \xrightarrow{\text{بجای } n} f(m) = f(mr) \Rightarrow \frac{m^2}{m^2 - r} = \frac{mr}{m^2 - r}$

$\frac{m^2}{m^2 - r} = \frac{mr}{m^2 - r} \Rightarrow m^2 = mr \Rightarrow m = \pm \sqrt{r}$

$m^2 = mr \Rightarrow m = \pm \sqrt{r}$

از اینجا که می‌آید $m = \pm \sqrt{r}$ $y = \pm \frac{\sqrt{r}}{m^2 - r}$

$f^{-1}(m) = \frac{n}{1+a}$ $g(m) = \sqrt{n} - 1 \Rightarrow y = \sqrt{n} - 1 \Rightarrow n = (y+1)^2$

$f^{-1}(m) = \frac{n}{1+a}$ $g(m) = \sqrt{n} - 1 \Rightarrow n = (y+1)^2$

$f(-\frac{r}{2}) = n$ $f^{-1}(-\frac{r}{2}) = \frac{r}{2} \Rightarrow f(-\frac{r}{2}) = -\frac{r}{2} \Rightarrow f(-\frac{r}{2}) = -\frac{r}{2} \Rightarrow f(-\frac{r}{2}) = -\frac{r}{2}$

$f^{-1}(n) = -\frac{r}{2} \Rightarrow f^{-1}(-\frac{r}{2}) = -\frac{r}{2} \Rightarrow f(-\frac{r}{2}) = -\frac{r}{2} \Rightarrow f(-\frac{r}{2}) = -\frac{r}{2}$

$\frac{n}{1+a} = -\frac{r}{2} \Rightarrow -r - r|a| = 0 \Rightarrow |a| = \frac{0n+r}{r}$

$f^{-1}(m) = \sqrt{n-1} \Rightarrow y = \sqrt{n-1} \Rightarrow n = (y+1)^2$

$f(m) = n^2 + 1 \Rightarrow g(m) = n^2 + 1 \Rightarrow n^2 + 1 = y \Rightarrow y = n^2 + 1$

$g^{-1}(12) = n$ $g(n) = 12 \Rightarrow n^2 + 1 = 12 \Rightarrow n^2 = 11 \Rightarrow n = \pm \sqrt{11}$

$g(n) = 12 \Rightarrow n^2 + 1 = 12 \Rightarrow n^2 = 11 \Rightarrow n = \pm \sqrt{11}$

$n^2 + 1 = 11 \Rightarrow n^2 = 10 \Rightarrow n = \pm \sqrt{10}$

$n = 2$