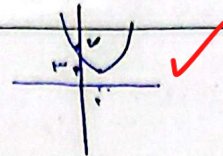
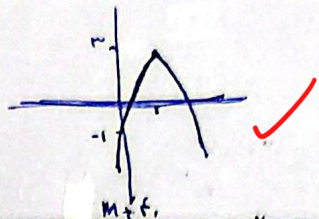


نام و نام خانوادگی کلاس شماره ۱۲ پاسخنامه تشریحی تکلیف شماره ۱۲ یازدهم

الف) $y = x^2 - 4x + 1$ $\begin{cases} x_1 = \frac{-b}{2a} = \frac{4}{2} = 2 \\ y_1 = 4 - 8 + 1 = -3 \end{cases}$  ۲

ب) $y = -(x^2 - 4x + 1)$ $\begin{cases} x_1 = 2 \\ y_1 = -(4 - 8 + 1) = 3 \end{cases}$  ۱

$2x^2 + (m+1)x + \frac{1}{2}m + 2 = 0$ $\Delta = (m+1)^2 - 4(2)(\frac{1}{2}m+2) = m^2 + 2m + 1 - 4m - 8 = m^2 - 2m - 7$
 $\Delta > 0 \rightarrow (m-5)(m+2) > 0 \rightarrow m \in (-\infty, -2) \cup (5, +\infty)$
 $\Delta = 0 \rightarrow (m-5)(m+2) = 0 \rightarrow m \in \{5, -2\}$
 $\Delta < 0 \rightarrow (m-5)(m+2) < 0 \rightarrow m \in (-2, 5)$
 $\Delta \geq 0 \rightarrow m \in (-\infty, -2] \cup [5, +\infty)$

الف) $(m-2)x^2 - 2(m+1)x + 1 = 0$ $\begin{cases} P > 0 \rightarrow \frac{1}{m-2} > 0 \rightarrow m > 2 \\ S < 0 \rightarrow \frac{2(m+1)}{m-2} < 0 \rightarrow m < 2 \\ \Delta > 0 \rightarrow \frac{4(m+1)^2 - 4(m-2)}{(m-2)^2} > 0 \rightarrow m > 2 \end{cases}$
 $m \in \{I, II\} = \emptyset$
 $\Delta > 0 \rightarrow 4m^2 + 4m + 4 - 4m - 8 = 4m^2 - 4m - 4 = 4(m^2 - m - 1) > 0$
 $\begin{cases} P < 0 \rightarrow \frac{1}{m-2} < 0 \rightarrow m < 2 \\ S < 0 \rightarrow \frac{2(m+1)}{m-2} < 0 \rightarrow m < 2 \\ \Delta > 0 \rightarrow m^2 - m - 1 > 0 \end{cases} \Rightarrow m \in (-1, 2)$

الف) $\begin{cases} a \neq 0 \rightarrow m \neq 2 \\ \Delta > 0 \rightarrow \text{همواره برقرار} \\ P < 0 \rightarrow \frac{1}{m-2} < 0 \rightarrow m < 2 \end{cases} \Rightarrow m \in (-\infty, 2)$

ب) $x_1 = \frac{-b}{2a} = \frac{x(m+1)}{x(m-2)} = -2 \rightarrow -2m + 4 = m + 1 \rightarrow -3m = -3 \rightarrow m = 1$

$\Delta > 0 \rightarrow 4 \sin^2 \alpha - 4 > 0 \rightarrow 4(\sin^2 \alpha - 1) > 0$
 $\sin^2 \alpha = 1 \rightarrow \sin \alpha = \pm 1 \rightarrow \sin \alpha = 1 \rightarrow \alpha = \frac{\pi}{2}$
 $\sin \alpha = -1 \rightarrow \alpha = \frac{3\pi}{2}$
 $\Rightarrow \frac{2x^2}{3} - 2x + \frac{2}{3} < 0 \rightarrow 2x^2 - 12x + 4 < 0 \rightarrow x^2 - 6x + 2 < 0$
 $\rightarrow (x-3)(x-1) < 0$
 $\rightarrow x \in (1, 3)$

$y = \frac{(2n^2 - 2n - 1)(2n^2 - 2n - 0)}{1 - n^2} \stackrel{-1}{=} \frac{(n-1)(2n+1)(2n-0)(n+1)}{(1-n)(1+n)}$ $= -(2n^2 - 2n - 0) = -2n^2 + 2n + 0 \rightarrow \begin{cases} x_{\max} = \frac{12}{12} \\ y_{\max} \rightarrow -2\left(\frac{149}{12}\right) + \frac{149}{12} + 0 = \end{cases}$ $y_{\max} = \frac{-149 + 149 + 12}{12} = \frac{12}{12} \checkmark$	(2) 6
$\nabla S = 0 \nabla + V \rightarrow \nabla \left(\frac{m+r}{m} \right) = 0 \left(\frac{-r}{m} \right) + V \xrightarrow{m} r m + r = -1 + r m$ $\rightarrow -r m = -1 \rightarrow m = \frac{1}{r}$ $\rightarrow S = \frac{m+r}{m} = \frac{r}{r}, p = \frac{-r}{m} = \frac{-r}{\frac{1}{r}} = -\frac{1}{r}$ $\rightarrow \alpha^r + \beta^r = S^r - r p = \frac{1}{r} + 1 = \frac{1+r}{r} \checkmark$	(2) 7
$\alpha + \beta = 0, \alpha \beta = r \rightarrow \alpha = 0 - \beta$ $\beta^r = 0 \beta - r \rightarrow \beta^r = \beta(0 \beta - r) = 0 \beta^r - r \beta = r 0 \beta - 1 = -r \beta, r \beta - 1$ $\beta^r = \beta(r \beta - 1) = r \beta^r - 1 \cdot \beta = r \beta^r - \beta = 1 \cdot 0 \beta - r = -r$ $\beta^0 = 1 \cdot 0 \beta - r = -r$ $\frac{r \cdot -r \beta + (-r) \cdot 1}{r 0 \beta - 1} = \frac{-r^2 \beta - r}{r 0 \beta - 1} = \frac{19(r 0 \beta - 1)}{r 0 \beta - 1} = 19 \checkmark$	(2) 8
$y = an^2 + bn + c \xrightarrow{c=0} y = an^2 + bn + c$ $\begin{pmatrix} 1 & 0 & 1 \end{pmatrix} \rightarrow 1 = a + b + c \rightarrow a + b = 1 \rightarrow a + 4a = 1 \rightarrow a = \frac{1}{5}$ $\begin{pmatrix} 4 & 0 & 1 \end{pmatrix} \rightarrow 4 = 4a + b + c \rightarrow 4a = b \rightarrow 4a = b$ $\rightarrow y = n^2 + 4n + 1 \xrightarrow{ns} ns = \frac{-b}{4a} = \frac{-4}{4} = -1 \checkmark$	(2) 9
$2n^2 + (m+1)n + m + 9 = n \rightarrow 2n^2 + mn + m + 9 = 0$ $\Delta = 0 \rightarrow m^2 - 4m - 36 = 0 \rightarrow (m-12)(m+3) = 0 \rightarrow \begin{cases} m=12 \\ m=-3 \end{cases} \checkmark$	(2) 10