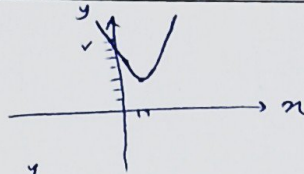
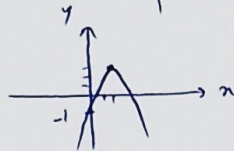


الف) $y \leq x^2 - 2x + 7$ ext $\begin{cases} x \leq \frac{-b}{2a} = \frac{1}{1} = 1 \\ y \leq 6 \end{cases}$
 $x \leq 0 \rightarrow y \leq 7$



ب) $y \leq -x^2 + 4x - 1$ ext $\begin{cases} x \leq \frac{-b}{2a} = \frac{2}{-1} = -2 \\ y \leq -5 \end{cases}$
 $x \leq 0 \rightarrow y \leq -1$
 $x \geq 0 \rightarrow x \leq 5$



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الف) $D > 0 \Rightarrow m^2 + 2m + 1 < (m - 2)^2 > 0 \Rightarrow \frac{m^2 - (m - 1)^2}{m \leq 0, m \leq -2} > 0$ $\begin{matrix} -2 & 0 \\ + & - & + \end{matrix} \Rightarrow m \in (-\infty, -2) \cup (0, +\infty)$

ب) $D \leq 0 \Rightarrow \frac{m^2 - (m - 1)^2}{m \leq 0, m \leq -2} \leq 0 \Rightarrow m \in \{-2, 0\}$ $\begin{matrix} -2 & 0 \\ + & - & + \end{matrix}$

ج) $D \geq 0 \Rightarrow \frac{m^2 - (m - 1)^2}{m \leq 0, m \leq -2} \geq 0$ $\begin{matrix} -2 & 0 \\ + & - & + \end{matrix} \Rightarrow m \in (-\infty, -2] \cup [0, +\infty)$

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الف) $P < 0 \Rightarrow \frac{1}{a} < 0 \Rightarrow \frac{1}{m-2} < 0$ $\begin{matrix} -2 & 0 \\ + & - & + \end{matrix} \Rightarrow m \in (-\infty, 2)$

ب) $x \leq -2 \Rightarrow \frac{-b}{2a} = -2 \Rightarrow \frac{r(m+1)}{r(m-2)} < -2 \Rightarrow -2m + 1 \leq m + 1 \Rightarrow m \leq 1$

سوال ۴

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الف) $\begin{cases} D > 0 \rightarrow f(m^2 + 2m + 1) - f_0(m - 2) > 0 \Rightarrow f(m^2 - 2m + 1) > 0 \\ S < 0 \rightarrow \frac{-b}{a} < 0 \Rightarrow \frac{r(m+1)}{m-2} < 0 \\ P > 0 \rightarrow \frac{1}{a} < 0 \Rightarrow \frac{1}{m-2} < 0 \end{cases}$ $\begin{matrix} -2 & 0 \\ + & - & + \end{matrix} \Rightarrow m \in (-2, 2)$

سوال ۳

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$\frac{c}{a} > 0 \Rightarrow \frac{1}{m-2} > 0$ $\begin{matrix} -2 & 0 \\ + & - & + \end{matrix} \Rightarrow m \in (2, +\infty)$

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$D \cap S \cap P = \emptyset$ $\begin{cases} P < 0 \rightarrow \frac{1}{a} < 0 \rightarrow \frac{1}{m-2} < 0 \Rightarrow m \in (-\infty, 2) \\ S < 0 \rightarrow \frac{-b}{a} < 0 \rightarrow \frac{r(m+1)}{m-2} < 0 \Rightarrow m \in (-2, 2) \\ D > 0 \rightarrow \text{فولدر مقلد است} \end{cases} \Rightarrow m \in (-2, 2)$

$D \geq 0 \Rightarrow \varepsilon \sin^2 \alpha + \varepsilon \geq 0 \Rightarrow \sin^2 \alpha \geq 1 \Rightarrow \sin \alpha \leq \pm 1$

$\sin \alpha \leq -1 \Rightarrow \frac{r}{2} x^2 + 2x + \frac{r}{2} \leq 0 \Rightarrow x \leq \frac{-b}{a} = -2$ $\begin{matrix} -2 & 0 \\ + & - & + \end{matrix}$

$\sin \alpha \leq 1 \Rightarrow \frac{r}{2} x^2 - 2x + \frac{r}{2} \leq 0 \Rightarrow x \leq \frac{-b}{a} = 2$

$x \leq \frac{r}{2} \Rightarrow x^2 - 2x + \frac{r}{2} \leq 0 \Rightarrow (x - \frac{r}{2})^2 \leq 0 \Rightarrow x = \frac{r}{2}$

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