

②

1

7

The image contains three hand-drawn graphs on a grid. The top-left graph shows a function with a jump discontinuity at $x=1$, with a solid dot at $(1, 2)$ and an open circle at $(1, 1)$. The top-right graph shows a function with a vertical asymptote at $x=1$, with a solid dot at $(1, 2)$ and an open circle at $(1, 1)$. The bottom graph shows a function with a jump discontinuity at $x=1$, with a solid dot at $(1, 2)$ and an open circle at $(1, 1)$.

$Q - (f, \omega)$
 $\cup [0, +\infty)$ ✓

④

7

$$-1 < x < 1$$

$b = 3$

$\downarrow$	$\downarrow$	$\downarrow$
$n=1$	$m=n$	$n=2$
1	2	2

نمائی مقدار

✓ كسرة بن مقدار = ٢

①

F

0.

9

$y \rightarrow y - 2$ (تحتی ۱ میل ۲)

$$y = \frac{x^2 + 0x + m}{m+1} \Rightarrow ny + y = x^2 + 0x + m$$

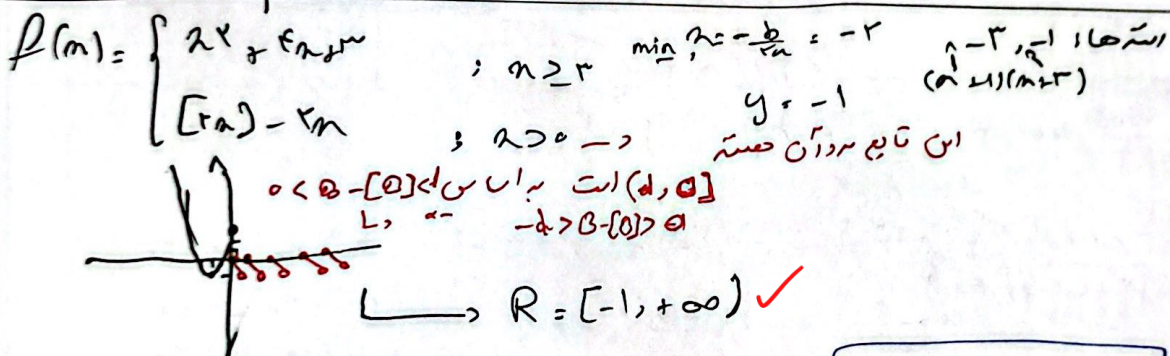
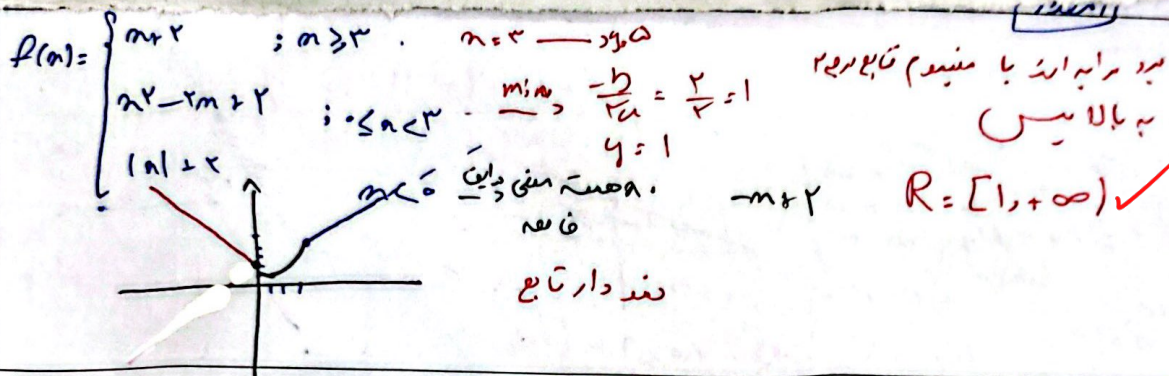
$$x^2 + 0x + ny + m - y = 0 \Rightarrow x^2 + (0-y)x + (m-y) = 0$$

$$x = \frac{-(0-y) \pm \sqrt{(0-y)^2 - 4(m-y)}}{2} \Rightarrow \Delta = y^2 - 4m + 4y \geq 0$$

برای اینکه جواب داشته باشد $\Delta \geq 0$ لازم است.

$$y^2 - 4y - 4m + 4 \geq 0 \Rightarrow y^2 - 4y + 4 \geq 4m \Rightarrow (y-2)^2 \geq 4m$$

برای $m \geq 0$ داریم $y \geq 2 + 2\sqrt{m}$ یا $y \leq 2 - 2\sqrt{m}$.
 برای $m < 0$ داریم $y \geq 2 + 2\sqrt{-m}$ یا $y \leq 2 - 2\sqrt{-m}$.



$y = a+1 - \sqrt{4m+4}$ $D_f = [b, +\infty)$ $ab = -\frac{r}{f_1} \times f_1 = -9$

$D_f: \sqrt{4m+4} \geq 0 \Rightarrow 4m+4 \geq 0 \Rightarrow m \geq -1$

$R = (-\infty, a] \Rightarrow$ کتبی مقدار a باید باشد.

$y = a+1 - 0 \Rightarrow a+1 = 0 \Rightarrow a = -1$

$a+1 = 0 \Rightarrow a = -1$ $R = (-\infty, a+1]$

$D_f = D_g = [-1, 1]$

$f(m) \pm g(m) = \sqrt{4+4\sqrt{1-m}} - \sqrt{4-4\sqrt{1-m}} = 2\sqrt{1+\sqrt{1-m}} - 2\sqrt{1-\sqrt{1-m}}$

$\sqrt{(1-m)(1+m)} \Rightarrow g(m) = f(m) + g(m) - f(m) = \sqrt{4+4\sqrt{1-m}} - \sqrt{4-4\sqrt{1-m}}$

$= \sqrt{1+m} - \sqrt{1-m} = g(m) \Rightarrow y = \frac{f(m) - 2g(m)}{4} = \frac{\sqrt{4+4\sqrt{1-m}} - 2\sqrt{4-4\sqrt{1-m}}}{4}$

$y = \sqrt{1-m}$ $D_g = [-1, 1]$ $R_g = [0, 1]$ ✓