

$$3) \text{ ب) } u = \frac{r|m|+1}{|m|-r}$$

محل جذر

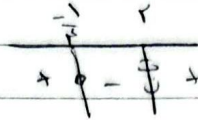
$$y|m| - ry = r|m| + 1$$

$$R_f = (-\infty, -\frac{1}{r}] \cup (r, +\infty)$$

$$y|m| - r|m| = ry + 1$$

$$|m|(y-r) = ry + 1$$

$$|m| = \frac{ry+1}{y-r}$$



$$4) \text{ ب) } y = \frac{1}{x^2 - 4x + r}$$

محل جذر

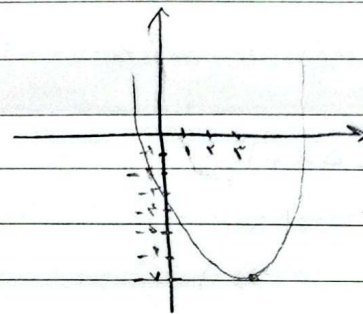
$$5) \text{ الف) } x^2 - 4x + r$$

$$x \rightarrow \frac{-b}{2a} = \frac{4}{2} = 2$$

$$R_f = [-v, +\infty)$$

$$y \rightarrow \frac{-\Delta}{4a} = -\frac{r-4}{4} = -v$$

$$\Delta = 16 - 4 \times 1 \times r = r-4$$



تقریب
ضیق

$$y(m-r)^2 - ry = 1$$

$$y((m-r)^2 - r) = 1$$

$$(m-r)^2 - r = \frac{1}{y}$$

$$R_f = (0, \frac{1}{r}]$$

$$(m-r)^2 = \frac{1}{y} + r$$

$$(m-r) = \pm \sqrt{\frac{1}{y} + r}$$

$$m = \pm \sqrt{\frac{1}{y} + r} + r$$

$$\frac{1}{y} + r > 0$$

$$\frac{1-ry}{y} > 0$$

$$y \neq 0$$

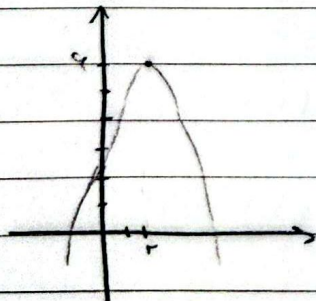
$$\frac{0}{-r+1-r}$$

$$6) \text{ ب) } y = -x^2 + 4x + r$$

$$\frac{-b}{2a} = \frac{-r}{-2} = r$$

$$\frac{-r}{-2} = r$$

$$\Delta = 16 - 4 \times 1 \times r = r-4$$



$$R_f = (-\infty, 4]$$

$$4) \text{ الف) } \sqrt{2x^2 - 4x + 2} \rightarrow \min$$

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در بیان مسئله

$$x = \frac{-b}{2a} = \frac{4}{2} = 2$$

$$y = \frac{-\Delta}{4a} = \frac{-(4^2 - 4 \times 2 \times 1)}{4} = \frac{-20}{4} = -5$$

مقدار بیشینه و کمینه در این حالت

مقدار عمل در این حالت

$$\sqrt{[-\infty, +\infty)} \rightarrow R_f = [0, +\infty)$$

$$4) \text{ ب) } \sqrt{-2x^2 + 4x + 1} \rightarrow \max$$

$$x = \frac{-b}{2a} = \frac{-4}{-2} = 2$$

$$y = \frac{-\Delta}{4a} = \frac{-(-4^2 - 2 \times 1 \times 1)}{-2} = \frac{-24}{-2} = 12$$

$$\sqrt{(-\infty, 12]} \rightarrow R_f = [0, 12]$$



$$5) \text{ الف) } y = \frac{x+1}{x-2}$$

$$R_f = R$$

$$\text{ب) } y = \sqrt{\frac{x+1}{x-2}}$$

12

$$R_f = [0, +\infty)$$

$$6) \text{ الف) } y = \frac{x+1}{x-2}$$

$$R_f = R - \{2\} \checkmark$$

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$$\text{ب) } y = \sqrt{\frac{x+1}{x-2}}$$

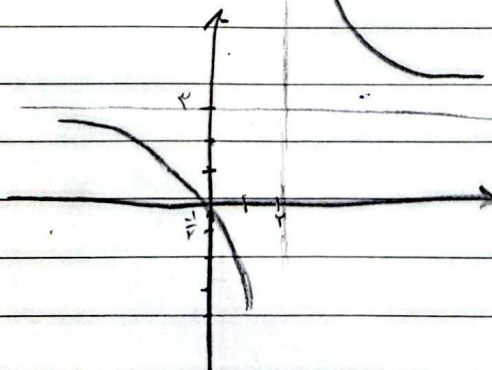
$$R_f = [0, 2) \cup (2, +\infty)$$

$$\sqrt{R - \{2\}} \rightarrow [0, +\infty) - \{2\}$$

$$7) \text{ الف) } y = \frac{x+1}{x-2}$$

2, 2

-1

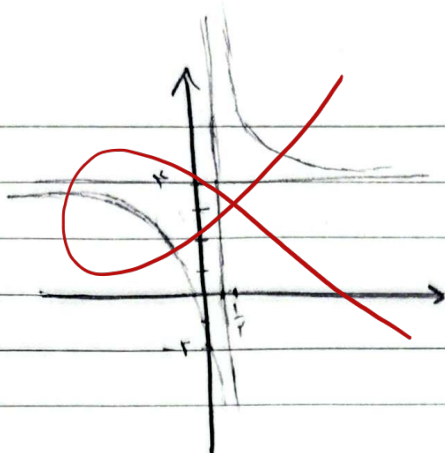


1

$$1) \rightarrow \frac{f(x)-r}{1-rx}$$

$$f = \frac{1}{x}$$

$-r$



دستگاه معادلات

$$1) y = \cos^n x + \frac{1}{\cos^n x}$$

$$x \in [r, +\infty)$$

$$R_f = [r, +\infty)$$

$1, \infty$

$$\rightarrow y = \sqrt[n]{\frac{x^r+1}{n}}$$

$$\frac{x^{\frac{r}{n}}}{\frac{r}{n}} + \frac{1}{\frac{r}{n}} = x + \frac{1}{x}$$

$$\rightarrow R_f = (-\infty, -r] \cup [r, +\infty)$$

$$x > 0 \rightarrow \left[\sqrt[n]{r}, +\infty \right)$$

$$x < 0 \rightarrow (-\infty, \sqrt[n]{-r}]$$