

SUBJECT:

DATA:

NUMBER:

18, 19

4 (سيف)

3 (سيف) (سيف) (سيف)

$$y = m^2 - 2 \Rightarrow m = \pm \sqrt{y+2} \Rightarrow y+2 \geq 0 \Rightarrow y \geq -2 \quad R_f = [-2, +\infty)$$

$$y = m^2 + 1 \Rightarrow m^2 = y - 1 \Rightarrow m = \pm \sqrt{y-1} \quad R_f = [1, +\infty)$$

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

$$y = m^2 - 2m + 1 \Rightarrow m^2 - 2m + 1 - y = 0 \Rightarrow m = \frac{2 \pm \sqrt{4 - 4(1-y)}}{2} = \frac{2 \pm \sqrt{4-4+4y}}{2} = \frac{2 \pm 2\sqrt{y}}{2} = 1 \pm \sqrt{y}$$

$$\Rightarrow -1 + \sqrt{y} \geq 0 \Rightarrow \sqrt{y} \geq 1 \Rightarrow y \geq 1 \quad R_f = [1, +\infty)$$

$$11) y = \frac{m^2 + 1}{m^2 - 2} \Rightarrow m^2 = \frac{y+1}{y-2} \Rightarrow m = \pm \sqrt{\frac{y+1}{y-2}} \Rightarrow \frac{y+1}{y-2} \geq 0$$

$$R_f = (-\infty, -\frac{1}{2}] \cup (1, +\infty)$$

$$12) y = \frac{m^2 + 1}{m^2 - 2} \Rightarrow m^2 = \frac{y+1}{y-2} \Rightarrow m = \pm \sqrt{\frac{y+1}{y-2}} \Rightarrow \frac{y+1}{y-2} \geq 0$$

$$R_f = (-\infty, -\frac{1}{2}] \cup (1, +\infty)$$

$$y = \frac{1}{m^2 - 2m} \Rightarrow y(m^2 - 2m) - 1 = 0 \Rightarrow m = \frac{2 \pm \sqrt{4 - 4(-y)}}{2} = \frac{2 \pm \sqrt{4+4y}}{2} = \frac{2 \pm 2\sqrt{1+y}}{2} = 1 \pm \sqrt{1+y}$$

$$\Rightarrow (1 + \sqrt{1+y})^2 \geq 0 \Rightarrow y(y+1) \geq 0 \Rightarrow y \leq -1 \text{ or } y \geq 0$$

$$\Rightarrow R_f = (-\infty, -1] \cup [0, +\infty)$$

$$y = m^2 - 2m + 2 \quad \min \left| \frac{-b}{2a} = \frac{2}{2} = 1 \right| \quad R_f = [1, +\infty)$$

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$$y = -m^2 + 2m + 2 \quad \max \left| \frac{-b}{2a} = \frac{-2}{-2} = 1 \right| \quad R_f = (-\infty, 4]$$

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SHAHAB

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$$y = \sqrt{m^2 + 4m + 4} \quad \min \quad \left| \begin{array}{l} m = \frac{-b}{2a} = \frac{-4}{2} = -2 \\ y = -1 \end{array} \right.$$

$$R_f = \sqrt{[-1, +\infty)} = [0, +\infty)$$

$$y = \sqrt{-m^2 + 4m + 1} \quad \max \quad \left| \begin{array}{l} m = \frac{-b}{2a} = \frac{-4}{-2} = 2 \\ y = 14 \end{array} \right.$$

$$R_f = \sqrt{(-\infty, 14]} = [0, \sqrt{14}]$$

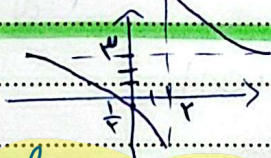
$$y = m^2 + 4m + 1 \Rightarrow \min = 1R$$

$$y = \sqrt{m^2 + 4m + 1} \Rightarrow \min = \sqrt{1R} = [0, +\infty)$$

$$y = \frac{m+1}{m-2} \Rightarrow \text{محدود نیست} \Rightarrow IR = \frac{a}{c} \Rightarrow IR = \frac{1}{-2} = -\frac{1}{2}$$

$$y = \sqrt{\frac{m+1}{m+2}} \Rightarrow \text{محدود نیست} \Rightarrow IR = [0, +\infty)$$

$$y = \frac{m+1}{m-2}$$



محدود نیست $\Rightarrow$ استهلاک $\Rightarrow$ $y = \frac{a}{c} = \frac{1}{-2} = -\frac{1}{2}$

$$y = \frac{m-2}{1-2m}$$



محدود نیست $\Rightarrow$ استهلاک $\Rightarrow$ $y = \frac{a}{c} = \frac{1}{-2} = -\frac{1}{2}$

$$y = \cos^2 t \Rightarrow R_f = [0, 1]$$

$$R_f = [0, 1] \cup [2, +\infty)$$

$$y = \sqrt{\frac{m^2+1}{m}} = \frac{m^2+1}{m} = \frac{m}{m} + \frac{1}{m} \Rightarrow R_f = (-\infty, -2] \cup [2, +\infty)$$

$$R_y = (-\infty, -\sqrt{2}] \cup [\sqrt{2}, +\infty)$$

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$$y = \frac{x_n - 2}{1 - 2x} = \frac{2(2x - 1)}{1 - 2x} = -2$$

سوال ۹ قسمت ب

تابع $y = -2$ است

