

(2)

1) $f(x) = 2 \sin^2(x + \frac{\pi}{2}) - 1$

$\sin^2$ ~ $\sin$ ~ 1 $\rightarrow 2(1) - 1 = 1$

$\sin^2$ ~ $\sin$ ~ 0 $\rightarrow 2(0) - 1 = -1$ $\rightarrow R \subseteq [-1, 1]$

2) $g(x) = 3 \cos^2 x$

$\cos^2$ ~ $\cos$ ~ 1 $\rightarrow 3(1) = 3$

$\cos^2$ ~ $\cos$ ~ -1 $\rightarrow 3(-1) = -3$ $\rightarrow R \subseteq [-3, 3]$

$y = \frac{x}{12} + [2] \quad -3 \leq x < -2 \quad |x| > 2 \quad -1, 3, -2$

$-2 \leq x < -1 \quad |x| > 2 \quad -1, 2, -2$

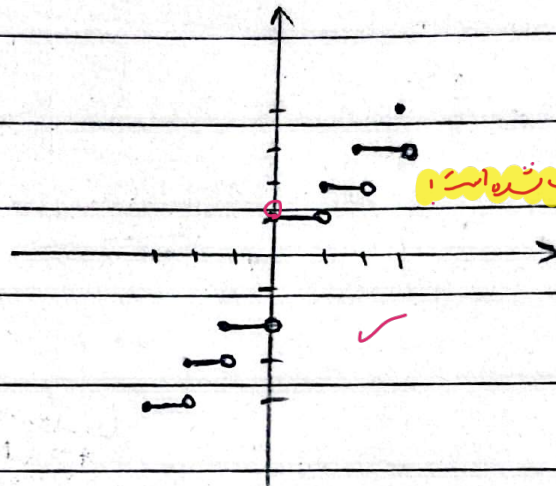
$-1 \leq x < 0 \quad |x| > 2 \quad -1, 1, -2$

$0 \leq x < 1 \quad |x| > 2 \quad 1, 0, -1$

$1 \leq x < 2 \quad |x| > 2 \quad 1, 1, 2$

$2 \leq x < 3 \quad |x| > 2 \quad 1, 2, 2$

$x \geq 3 \quad |x| > 2 \quad 1, 2, 2$

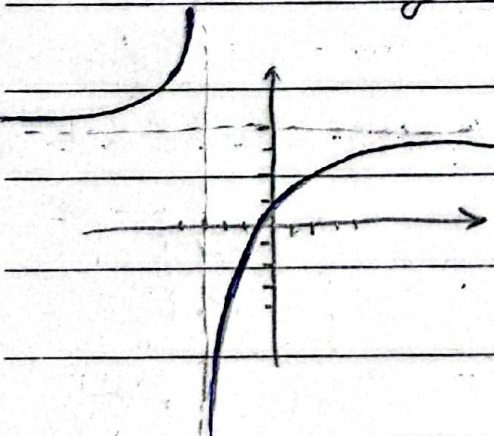


(1, V8)

صورت تعریف شده است

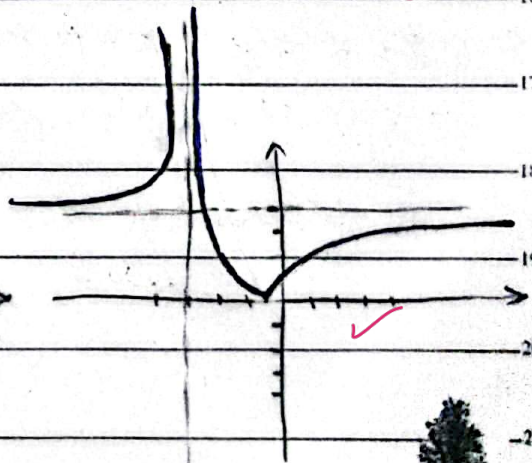
$y = \frac{x+1}{x+2}$ $\frac{1}{x+2}$ $\rightarrow$ $\frac{1}{x+2}$ $\rightarrow$ $\frac{1}{x+2}$ $\rightarrow$ $\frac{1}{x+2}$

خط افقی



قد بطول دور حل

همچنین با استفاده از مشتق می‌توانیم

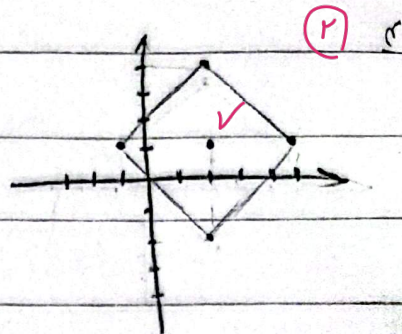


1. $x < 2, y < 1 \rightarrow 2 - x + 1 - y = 3 \rightarrow y = x$

2. $x < 2, y > 1 \rightarrow 2 - x + y - 1 = 3 \rightarrow y = x + 2$

3. $x > 2, y > 1 \rightarrow x - 2 + y - 1 = 3 \rightarrow y = -x + 6$

4. $x > 2, y < 1 \rightarrow x - 2 + 1 - y = 3 \rightarrow y = x - 4$



6. الف) $P(x) = x + \frac{1}{x} + \sqrt{x + \frac{1}{x}} \rightarrow t + \sqrt{t} = (\sqrt{t} + 1)^2 - 1$

$R = [2\sqrt{2} + 2, +\infty)$

8. $x + \frac{1}{x} \geq 0 \rightarrow x > 0$: $x + \frac{1}{x} \geq 2 \rightarrow (\sqrt{t} + 1)^2 - 1 \geq (\sqrt{t} + 1)^2 - 1 \geq 2\sqrt{2} + 2$

10. ب) $(3 - \sin x)(1 + \sin x) = -\sin^2 x + 2\sin x + 3$

max: $-1 + 2 + 3 = 4$

min: $-1 - 2 + 3 = 0$

$R = [0, 4]$

$\frac{-b}{2a} = \frac{-2}{-2} = 1 \rightarrow -1 + 2 + 3 = 4$

$\frac{10 \times 9}{4} = 22.5$

14. مجموع اقصای برد: $-1/2 \times 1 + 10 = -1/2 \times 9 + 10 = -1/2(1 + -9) + 9 \times 10$

$\frac{-90}{3} + 90 = 90 - 30 = 60$

16. $2b + c \geq 0$: $a \leq 0$: $b \geq 1, c \leq -2$

17. $2b + c \leq 1 \rightarrow g(x) = \sqrt{x^2 + 4} \rightarrow \frac{-\Delta}{2a} = 0 \rightarrow \sqrt{4}$

$\rightarrow R = [2, +\infty)$

19. $f(x) = \frac{x(x+2)(x-2)}{x+2} \rightarrow \frac{x(x-2)}{1} \rightarrow \frac{-\Delta}{2a} = -1 \leq 0$

20. $x^2 - 2x + 1 = (x-1)^2$: $(x-1)^2 \geq 0$: $x \geq 1$

21. $a = -2, b \leq 0$



Senobar

$f\left(\frac{2}{-2}\right) = f(-1) = 1 - (-2) = 3$

$$y = \sqrt{(x+t)^2} \Rightarrow x^2 - 4x^2 + 12x - 1$$

۹. تابع معکوس:

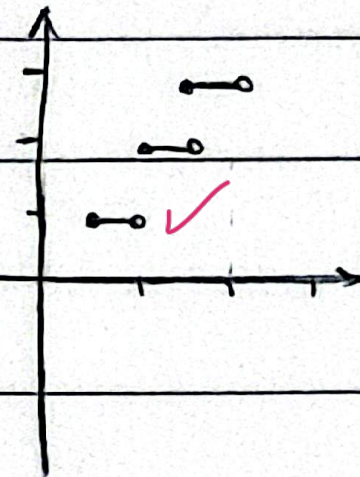
$$t^2 s - 1 \rightarrow t s - 2 \quad a s - 4, b s 12$$

$$y s x - 2 \Rightarrow R s [-1, 1]$$

$$\frac{1}{r} < x < 1 \quad [n] : 0 \rightarrow 0 + 1 s 1$$

$$1 < x < \frac{2}{r} \quad [n] : 1 \rightarrow 1 + 1 s 2$$

$$\frac{2}{r} < x < 2 \quad [n] : 1 \rightarrow 1 + 2 s 2$$



۱۰. (۲)