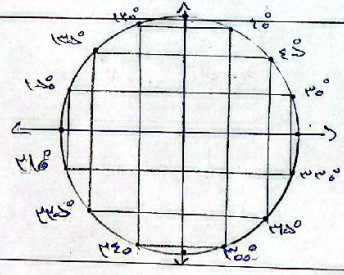


نام و نام خانوادگی: ... نام و نام خانوادگی: ... کلاس: ...



$\sin 0 = 0$	$\sin \pi = 0$	$\sin 2\pi = 0$
$\sin \frac{\pi}{6} = \frac{1}{2}$	$\sin \frac{5\pi}{6} = \frac{1}{2}$	$\sin \frac{7\pi}{6} = -\frac{1}{2}$
$\sin \frac{\pi}{3} = \frac{\sqrt{3}}{2}$	$\sin \frac{2\pi}{3} = \frac{\sqrt{3}}{2}$	$\sin \frac{4\pi}{3} = -\frac{\sqrt{3}}{2}$
$\sin \frac{\pi}{2} = 1$	$\sin \pi = 0$	$\sin \frac{3\pi}{2} = -1$
$\sin \frac{2\pi}{3} = \frac{\sqrt{3}}{2}$	$\sin \frac{5\pi}{6} = \frac{1}{2}$	$\sin \frac{7\pi}{6} = -\frac{1}{2}$
$\sin \frac{5\pi}{6} = \frac{1}{2}$	$\sin \frac{2\pi}{3} = \frac{\sqrt{3}}{2}$	$\sin \frac{4\pi}{3} = -\frac{\sqrt{3}}{2}$
$\sin \frac{7\pi}{6} = -\frac{1}{2}$	$\sin \frac{5\pi}{6} = \frac{1}{2}$	$\sin \frac{3\pi}{2} = -1$
$\sin \frac{3\pi}{2} = -1$	$\sin \pi = 0$	$\sin \frac{2\pi}{3} = \frac{\sqrt{3}}{2}$
$\sin \frac{4\pi}{3} = -\frac{\sqrt{3}}{2}$	$\sin \frac{7\pi}{6} = -\frac{1}{2}$	$\sin \frac{5\pi}{6} = \frac{1}{2}$
$\sin \frac{5\pi}{6} = \frac{1}{2}$	$\sin \frac{2\pi}{3} = \frac{\sqrt{3}}{2}$	$\sin \frac{4\pi}{3} = -\frac{\sqrt{3}}{2}$
$\sin \frac{7\pi}{6} = -\frac{1}{2}$	$\sin \frac{5\pi}{6} = \frac{1}{2}$	$\sin \frac{3\pi}{2} = -1$
$\sin \frac{3\pi}{2} = -1$	$\sin \pi = 0$	$\sin \frac{2\pi}{3} = \frac{\sqrt{3}}{2}$
$\sin \frac{4\pi}{3} = -\frac{\sqrt{3}}{2}$	$\sin \frac{7\pi}{6} = -\frac{1}{2}$	$\sin \frac{5\pi}{6} = \frac{1}{2}$

الف) $\frac{1}{x} + (-1) + 2 \times (-1) = -2$

ب) $\frac{1}{x} + \frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} - 2 \times (-\frac{\sqrt{3}}{2}) = \frac{\sqrt{3}}{2}$

ج) $\frac{1}{x} - \frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} + \frac{2\sqrt{3}}{2} = \frac{\sqrt{3}}{2}$

د) $1 + 1 = 2$

$a^2 + 2a = 2a + a + 2 \Rightarrow a^2 + a - 2 = 0$

$(a-1)(a+2) = 0 \Rightarrow a_1 = 1, a_2 = -2$

$f(x) = \begin{cases} x^2 + 2x & x \geq 1 \\ 2x + 2 & x \leq 1 \end{cases} \rightarrow f(1) = 3$

$|x+1| \geq 2 \Rightarrow x+1 \geq 2 \vee x+1 \leq -2 \Rightarrow x \geq 1 \vee x \leq -3$

$x=1 \rightarrow x-b = -2 \Rightarrow a+b=3$

$x=-3 \rightarrow x-b = -2 \Rightarrow a+b=1$

الف) $x^3 - 2x^2 \neq 0 \rightarrow x(x^2 - 2x) \neq 0 \rightarrow x \neq 0, x \neq 2$

$D_f = \mathbb{R} - \{0, 2\}$

ب) $2x^3 + x^2 + 2x + 2 \neq 0 \rightarrow x^2(x^2 + 2x + 2) \neq 0$

$(x^2 + 2x + 2) \neq 0 \rightarrow D_f = \mathbb{R} - \{-1 \pm i\}$

الف) $x^2 - 1 \geq 0 \rightarrow x \geq 1 \vee x \leq -1$

$x - 2 \geq 0 \rightarrow x \geq 2$

$D_f = [2, +\infty)$

ضابطه یابو باز نویسی مرتبه

در ضابطه مشترک است:

$f(n) = \begin{cases} 2n^2 - b & n \geq 1 \\ a + 2n & -3 \leq n \leq -1 \\ 2n^2 - b & n \leq -3 \end{cases}$

$a + 2(-3) = 2(-3)^2 - b$

$a + b = 24$

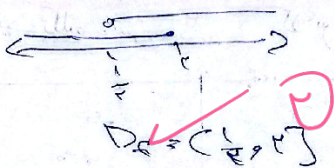
الف) $y = \frac{1}{n^3 - 4n^2} \rightarrow n^3 - 4n^2 = 0 \rightarrow n^2(n - 4) = 0$

$n=0$
 $n=4$

$D_f = \mathbb{R} - \{0, 4\}$

$$\rightarrow x - \infty < 0 \rightarrow \infty \leq 2$$

$$x - \infty > 0 \rightarrow \infty > \frac{1}{x}$$



$$x - \infty = 0 \rightarrow x = \infty$$

$$b = \infty = 0 \rightarrow x = \infty \rightarrow b = \infty \rightarrow \frac{b}{x} = \frac{\infty}{\infty} = 1$$

①

01) $\frac{x}{x^2 - x - 2} \geq 0$

$$\rightarrow \frac{x^2 - x - 2}{(x^2 - x - 2)(x + 2)} = \frac{(x - 2)(x + 1)}{(x^2 - x - 2)(x + 2)}$$

$$D_f = (-\infty, -2) \cup (-1, 1) \cup (2, \infty)$$

01) $\sqrt{x} - 2 \geq 0 \rightarrow [x] \geq 4 \rightarrow x \geq 4$

02) $\sqrt{x} - 1 \geq 0 \rightarrow [x] \geq 1 \rightarrow x \geq 1$

01) $\frac{x+1}{|x-1|} \geq 0$

$\frac{x-1}{x^2 + x + 1} \geq 0$

$\rightarrow [x] - 2 \geq 0 \rightarrow x \geq 2$

$x - [x] \geq 0 \rightarrow [x] \leq x \rightarrow x \leq \infty$

$D_f = \{x\}$

