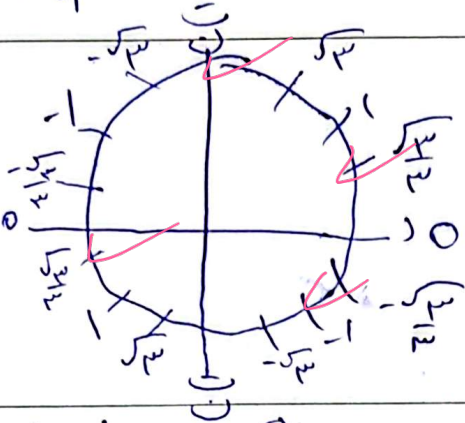


۲. افین خوب نویسی



۵

۱

الف) $\frac{1}{2} - 1 - 2 = -\frac{3}{2}$
 ب) $\frac{\sqrt{3}}{2} = \frac{\sqrt{3}}{2} - 3(-\frac{\sqrt{3}}{2}) - (-\frac{\sqrt{3}}{2})$
 ج) $\frac{\sqrt{3}}{3} = \frac{\sqrt{3}}{3} - \frac{\sqrt{3}}{3} + \frac{\sqrt{3}}{3} + \frac{\sqrt{3}}{3}$
 د) $\cos(0) + \sin(\pi/6) = 1 + 1/2 = 3/2$

۵

۲

$a^2 + 4a = 3a + 2 \Rightarrow a^2 + a + 2 = 0$ $a > 0$ $a = 1$
 $f(1) = 1 + 4 = 5$

۵

۳

$f(x) = \begin{cases} x^2 - 1 & x \geq 1 \\ x^2 + 1 & x < 1 \end{cases}$
 $f(1) = 1^2 - 1 = 0$
 $f(-1) = (-1)^2 + 1 = 2$
 $f(2) = 2^2 - 1 = 3$
 $f(-2) = (-2)^2 + 1 = 5$
 $f(3) = 3^2 - 1 = 8$
 $f(-3) = (-3)^2 + 1 = 10$
 $f(4) = 4^2 - 1 = 15$
 $f(-4) = (-4)^2 + 1 = 17$
 $f(5) = 5^2 - 1 = 24$
 $f(-5) = (-5)^2 + 1 = 26$
 $f(6) = 6^2 - 1 = 35$
 $f(-6) = (-6)^2 + 1 = 37$
 $f(7) = 7^2 - 1 = 48$
 $f(-7) = (-7)^2 + 1 = 50$
 $f(8) = 8^2 - 1 = 63$
 $f(-8) = (-8)^2 + 1 = 65$
 $f(9) = 9^2 - 1 = 80$
 $f(-9) = (-9)^2 + 1 = 82$
 $f(10) = 10^2 - 1 = 99$
 $f(-10) = (-10)^2 + 1 = 101$

۵

۴

الف) $y = \frac{1}{x^2 - 4} = \frac{1}{(x-2)(x+2)}$
 $\frac{1}{(x-2)(x+2)} = \frac{A}{x-2} + \frac{B}{x+2}$
 $1 = A(x+2) + B(x-2)$
 $1 = Ax + 2A + Bx - 2B$
 $1 = (A+B)x + (2A-2B)$
 $A+B = 0$
 $2A-2B = 1$
 $A = -B$
 $2(-B)-2B = 1$
 $-4B = 1$
 $B = -1/4$
 $A = 1/4$
 $y = \frac{1/4}{x-2} - \frac{1/4}{x+2}$
 $y = \frac{1}{4} \left(\frac{1}{x-2} - \frac{1}{x+2} \right)$
 $y = \frac{1}{4} \left(\frac{x+2 - (x-2)}{(x-2)(x+2)} \right)$
 $y = \frac{1}{4} \left(\frac{4}{x^2 - 4} \right)$
 $y = \frac{1}{x^2 - 4}$

۵

۵

اذا $y = \sqrt{a^2-1} + \sqrt{a-1}$ $a^2-1 > 0 \rightarrow a > 1$ ① $a-1 > 0 \rightarrow a > 1$ ②

① ∧ ② $\rightarrow D_f = [1, +\infty)$

ب) $y = \frac{\sqrt{4-a}}{\sqrt{4a-1}}$

$4-a > 0 \rightarrow a < 4$ $4a-1 > 0 \rightarrow a > \frac{1}{4}$

$a > \frac{1}{4}$

$D_f = (\frac{1}{4}, 4]$

$y = \sqrt{4a-a} + \sqrt{b-a}$ $b-a > 0 \rightarrow b > a$ $\frac{b-a}{a} = \frac{b}{a} - 1$ $b = 4$

$4a-a > 0 \rightarrow 4a > a \rightarrow a > 0$ $\frac{4}{a} - 1 = 1 \rightarrow a = 1$

$\frac{b}{a} = \frac{4}{1} = 4$

اذا $y = \sqrt{\frac{a^2-a-4}{a^2-1}}$ $= \sqrt{\frac{(a-2)(a+2)}{(a-1)(a+1)}}$

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

ب) $y = \sqrt{\frac{a^2-2a^2 \cos^2 \theta}{a^2 \cos^2 \theta - a - 4}}$ $= \sqrt{\frac{(a-1)(a+1) \cos^2 \theta}{(a+1)(a^2+1)(a-2)}}$

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

اذا $y = \sqrt{2[a]^2}$ $2[a]^2 > 0 \rightarrow [a] > 0 \rightarrow a > 0$ $D_f = [1, +\infty)$

ب) $\sqrt{2[a]^2} = \omega \rightarrow [a] > \omega \rightarrow [a] > \omega \rightarrow a > \omega$ $D_f = [1, +\infty)$

اذا $y = \sqrt{\frac{a+1}{a+1}}$ $+ \sqrt{\frac{4-a}{a^2+1}}$ $4-a > 0 \rightarrow a < 4$

$|a+1| \neq 0 \rightarrow a \neq -1$

$a+1 > 0 \rightarrow a > -1$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0$

$\Delta < 0</$