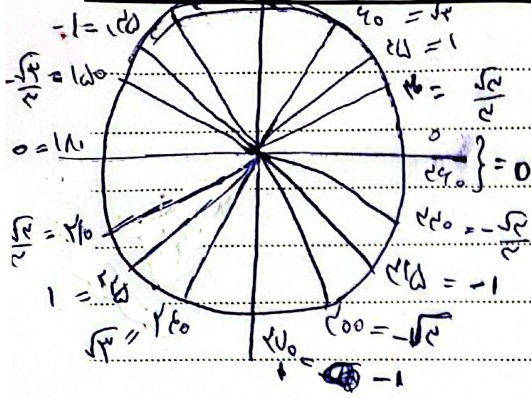




الف) $\sin \frac{\pi}{4} + \cos \frac{\pi}{4} + 2 \tan \frac{\pi}{4}$ ب) $-\cos \frac{\pi}{4} + \sin \frac{\pi}{4} - 2 \sin \frac{\pi}{4}$ ج) $\cot \frac{\pi}{4} + \csc \frac{\pi}{4} - 2 \tan \frac{\pi}{4}$ د) $\cos(\sin \pi) + \sin(\cos \pi)$

$= \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + 2(1) = \frac{2}{\sqrt{2}} + 2 = \sqrt{2} + 2$ $= -(-\frac{\sqrt{2}}{2}) + \frac{\sqrt{2}}{2} - 2(-\frac{\sqrt{2}}{2}) = \frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} + \sqrt{2} = 2\sqrt{2}$ $= \frac{\sqrt{2}}{2} + \sqrt{2} - 2(-\frac{\sqrt{2}}{2}) = \frac{\sqrt{2}}{2} + \sqrt{2} + \sqrt{2} = \frac{3\sqrt{2}}{2}$ $= \cos(\sin \pi) + \sin(\cos \pi) = \cos(0) + \sin(-1) = 1 - \sin(1)$

$x^2 + f(x) = x^2 + a + c \xrightarrow{x=a} a^2 + f(a) = a^2 + a + c \rightarrow a^2 + a - c = 0$

$\Rightarrow (a+c)(a-1) = 0 \rightarrow a = -c, 1 \rightarrow f(1) = 1^2 + f(1) = 1$

if $x = -c \rightarrow x^2 - b = a + cx \rightarrow 1 - b = a - c \rightarrow 2c = a + b$

الف) $\frac{1}{x^2 - 4} = \frac{1}{x^2 (x-2)} \rightarrow x \in \mathbb{R} - \{0, 2\}$ ب) $\frac{1}{x^2 + 4x + 4} = \frac{1}{x^2 (x+2) + 2(x+2)}$

$\Rightarrow \frac{1}{(x+2)(x+2)} \rightarrow x \neq -2$

الف) $y = \sqrt{x-1} + \sqrt{x-5}$

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

$\sqrt{x-1} \rightarrow x-1 \geq 0 \rightarrow x \geq 1$
 $\sqrt{x-5} \rightarrow x-5 \geq 0 \rightarrow x \geq 5$
 $\Rightarrow x \geq 5$

$\sqrt{4-4m} \geq 0 \rightarrow 4-4m \geq 0 \rightarrow 4 \geq 4m \rightarrow 1 \geq m$
 $\sqrt{4m-4} \geq 0 \rightarrow 4m-4 \geq 0 \rightarrow 4m \geq 4 \rightarrow m \geq 1$
 $\Rightarrow m = 1$

$y = \sqrt{4x-a} + \sqrt{b-4x} \xrightarrow{x=2} \sqrt{8-a} + \sqrt{b-8} = 0$

$\begin{cases} 8-a=0 \rightarrow a=8 \\ b-8=0 \rightarrow b=8 \end{cases} \Rightarrow \frac{b}{a} = 1$

الف) $x^2 - x - 6 = (x-2)(x+3)$

$x^2 - 2x + 3x - 6 = (x-2)(x+3)$

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

$\rightarrow (-\infty, -2) \cup (2, +\infty)$

ب) $x^2 - 4x + 6 = (x-1)(x-2)(x+3)$

$x^2 - 4x + 6 = (x-1)(x-2)(x+3)$

$\Rightarrow \frac{1}{(x-1)(x-2)(x+3)} = \frac{A}{x-1} + \frac{B}{x-2} + \frac{C}{x+3}$
 $\rightarrow (-\infty, -3) \cup (-3, -1) \cup (-1, 2) \cup (2, +\infty)$

الف) $2[n] - 5 \geq 0 \rightarrow 2[n] \geq 5$

$[n] \geq 3 \rightarrow n \geq 3$

ب) $2[n] - 4 \geq 0 \rightarrow 2[n] \geq 4$

$[n] \geq 2 \rightarrow n \geq 2$

الف) $n+1 \geq 0 \rightarrow n \geq -1$

$|n-2| \neq 0 \rightarrow n \neq 2$

$4-n \geq 0 \rightarrow 4 \geq n$

$n^2 + 2n + 1 \rightarrow (n+1)^2$

موجب

ب) $[n] - 5 \geq 0 \rightarrow [n] \geq 5$

$\rightarrow n \geq 5$

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

EHSAN