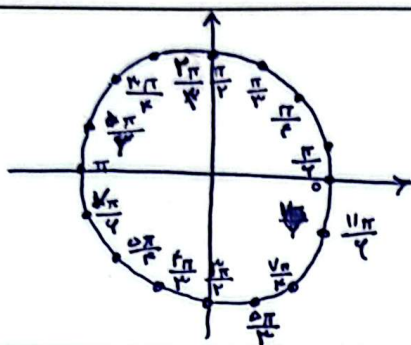




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الف) $\sin 40^\circ + \cos 110^\circ + 2(\tan 145^\circ) = -\frac{4}{3}$

ب) $-\cos 150^\circ + \sin 120^\circ - 3(\sin 240^\circ) = \frac{5\sqrt{3}}{2}$

ج) $\cot 140^\circ + 3(\cot 240^\circ) - 2(\tan 150^\circ) = \frac{5\sqrt{3}}{3}$

د) $\cos(\sin \pi) + \sin(\pi \cos \frac{\pi}{3}) = 1$

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$x^2 + 4x = 2x + a + 2 \rightarrow f(1) \rightarrow 1 + 4 = 2 + (a + 2)$

$f(a) \rightarrow 2 + 1 + 2 = 5$

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$f(-3) = 2(-3)^2 - b = 18 - b$

$f(-3) = a + 2(-3) = a - 6$

$18 - b = a - 6$

$a + b = 24$

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الف) $D = \mathbb{R} - \{0, 4\}$

ب) $D = \mathbb{R} - \{-2\}$

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الف) $y = \sqrt{x^2 - 2} + \sqrt{x - 2} \quad D = \mathbb{R} - (-\infty, 2]$ $\Rightarrow D = \left(\frac{1}{4}, 2\right] \rightarrow 4 - 2x \geq 0 \rightarrow x \leq 2 / 4x - 2 \geq \frac{1}{4}$	٦
$4x - a = 0 \rightarrow 12 - a \geq 0 \rightarrow \boxed{a \leq 12} \quad \sqrt{b - 3x} = 0 \rightarrow \boxed{b = 4}$ $\frac{b}{a} = \frac{4}{12} = \frac{1}{3}$	٧
الف) $\frac{1}{(x-2)(x+2)} \geq 0 \quad D = (-\infty, -2) \cup (2, 2) \cup (2, \infty)$ $\Rightarrow D = (-\infty, -2) \cup [-2, -1) \cup [1, 2) \cup [3, \infty)$	٨
الف) $\sqrt{2[x]} - 5 = D = (3, +\infty)$ ب) $\sqrt{2[x]} - 5 = D = [3, +\infty)$	٩
الف) $x^2 + 2x + 5, (x+1)^2 + 3 \geq 0 \quad x \leq 2 \quad D = [-1, 2) \cup (2, 4]$ $\Rightarrow D = \emptyset$	١٠