

الف $D_f = [-16, 2]$

ب $D_f = [2, 9]$

الف $x^2 \geq 0 \Rightarrow x^2 \geq 2 \Rightarrow x \geq \sqrt{2} \Rightarrow x \geq 1.41$

ب $2|x| - 9 \geq 0 \Rightarrow |x| \geq 4.5 \Rightarrow x \geq \pm 4.5$
 $D_f = [-4.5, 4.5]$

الف $D_f = \mathbb{R} - \{-3, 3\}$

ب $D_f = \mathbb{R} \setminus (-9, +\infty)$

الف $3 - |x| \geq 0 \Rightarrow |x| \leq 3 \Rightarrow x \in [-3, 3]$
 $D_f = [-3, 3]$

ب $\frac{-2}{+} \frac{-1}{-} \frac{1}{+} \frac{2}{+} \Rightarrow (-\infty, -2] \cup (-1, 1) \cup [2, +\infty)$

الف $x + |x| > 0 \Rightarrow |x| > -x \Rightarrow D_f = (0, +\infty) \subset \mathbb{R}^+$

ب $x|x| > 0 \Rightarrow D_f = (0, +\infty) \subset \mathbb{R}^+$

الف) $x - [x] > 0 \Rightarrow x > [x] \Rightarrow Df = (-\infty, 3)$

ب) $x - [x] > 0 \Rightarrow x > [x] \Rightarrow Df = (-\infty, 2)$

الف) $x[x] > 0 \Rightarrow Df = R^+ \cup R^-$

ب) $-x[x] > 0 \Rightarrow x[x] < 0 \Rightarrow Df = \emptyset$

الف) $[x - \frac{1}{4}] + [x + \frac{3}{4}] \Rightarrow [x + \frac{3}{4} - 1] + [x + \frac{3}{4}] \Rightarrow [x + \frac{3}{4}] - 1 + [x + \frac{3}{4}] > 0 \Rightarrow x + \frac{3}{4} > 1 \Rightarrow [x + \frac{3}{4}] > \frac{1}{4}$
 $\Rightarrow Df = [\frac{1}{4}, +\infty)$

ب) $[x - \frac{1}{4}] + [x + \frac{1}{4}] > 0 \Rightarrow [x - \frac{1}{4}] + [-(x - \frac{1}{4})] \Rightarrow x - \frac{1}{4} \in \mathbb{Z}$
 $\Rightarrow Df = \{x \mid x = p + \frac{1}{4}, p \in \mathbb{Z}\}$

الف) ~~$\sin^2 x - 1 \neq 0 \Rightarrow \sin^2 x \neq 1 \Rightarrow \sin x \neq \pm 1 \Rightarrow \sin x \neq \pm \sqrt{1}$~~

ب) $\tan x + 1 \neq 0 \Rightarrow \tan x \neq -1 \Rightarrow Df = \mathbb{R} - \{k\pi + \frac{\pi}{4}\}$

الف) $\sin^2 x - 1 > 0 \Rightarrow \sin^2 x > 1 \Rightarrow \sin x > \frac{1}{4} \Rightarrow Df = [k\pi + \frac{\pi}{4}, k\pi - \frac{\pi}{4}]$

ب) $1 - \cos^2 x > 0 \Rightarrow 1 > \cos^2 x \Rightarrow \frac{1}{4} > \cos x$