

$$y = \sqrt{\frac{x^2 + 1}{x + b}} + a$$

$$Dy = (1, +\infty) \Rightarrow \text{معرى (2)}$$

$$\Downarrow$$

$$\boxed{b = -1}$$

الف) $y = \sqrt{x^2 - x}$

$$y = \sqrt{x(x-1)(x+1)}$$

$$\frac{-1}{-1} \quad \frac{0}{+1} \quad \frac{1}{-1} \quad \frac{1}{+1}$$

$$D_f = [-1, 0] \cup [1, +\infty)$$

ب) $y = \frac{1}{\sqrt{|x| - 1}}$

$$|x| \neq 1 \Rightarrow x \neq \pm 1$$

$$\frac{-1}{+1} \quad \frac{1}{-1} \quad \frac{1}{+1}$$

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

الف) $y = \sqrt{\frac{1}{|x| - [x]}}$

$$|x| - [x] \neq 0$$

$$|x| \neq [x] \Rightarrow x \neq W$$

$$\Rightarrow D_f = \mathbb{R} - \{W\}$$

ب) $\sqrt{x} + \sqrt{y} = 9$

$$\max \sqrt{x} = 9 \Rightarrow x = 81$$

$$\min \sqrt{x} = 0 \Rightarrow x = 0$$

$$D_f = [0, 81]$$

$$y = \frac{1}{\sqrt{\left(x - \frac{1}{2}\right)^2 - \left(x + \frac{3}{2}\right)}} = \frac{1}{\sqrt{2\left(x - \frac{1}{2}\right)^2 + 2}}$$

$$2\left(x - \frac{1}{2}\right)^2 > 0$$

$$\left(x - \frac{1}{2}\right)^2 > -1$$

$$\Rightarrow x - \frac{1}{2} \neq 0$$

$$x > \frac{1}{2} \quad x < \frac{1}{2}$$

$$y = \sqrt{1 - \log_2(x-a)}$$

$$\Rightarrow 1 - \log_2(x-a) \geq 0$$

$$\log_2(x-a) \leq 1$$

$$x-a > 0$$

$$x > a$$

$$x > \frac{9}{2}$$

$$x-a \leq 1$$

$$x \leq 1+a$$

$$x \leq \frac{10+a}{2}$$

$$\Rightarrow \frac{9}{2} < x \leq \frac{10+a}{2}$$

$$c-b = \frac{10+a}{2} - \frac{9}{2} = \frac{1+a}{2} = \boxed{5}$$

