

کیمیا عنصر اصنافی یازدهم دفتر A شماره تکلیف V=

① $f(x) = \sqrt{x + 4\sqrt{x-4}} \sim \sqrt{x-4} + 2$ $f(x) = \sqrt{x + 4\sqrt{x-4} + 4-4}$ $f(x) = \sqrt{(\sqrt{x-4} + 2)^2} = \sqrt{x-4} + 2$
 $g(x) = \sqrt{x-4\sqrt{x-4} + 4-4} \rightarrow g(x) = \sqrt{(\sqrt{x-4} - 2)^2} = \sqrt{x-4} - 2$
 چون $x \geq 4$ هاله مثبت است

$g(x) + f(x) = \sqrt{x-4} \quad \begin{cases} a=0 \\ b=1 \\ c=-4 \end{cases} \sim \frac{a+b}{c} = \frac{1}{-4} = -\frac{1}{4}$

⑤ $f(x) = \frac{x+2}{x^2-4x+3}$ $f(x) = \left\{ (2, -4) \right\}$

$\frac{g}{f} \rightarrow \left\{ (2, \frac{1}{-4}) \right\}$

③ الف - $f(x) = \left\{ (\frac{1}{x}, 2) \right\}$

ب - $f(x^2) \rightarrow x^2-1 \rightarrow +1 \quad x^2-3 \rightarrow +\sqrt{3} \quad x^2-4 \rightarrow +2 \quad x^2=-1 \rightarrow$

$f(x^2) = \left\{ (1, 2) \right\}$

ج - $g^2(x) \rightarrow \left\{ (-2, 9) \right\}$

$rg^2(x) + 1 \rightarrow \left\{ (-2, 19) \right\}$

د - $rf \rightarrow \left\{ (1, 4) \right\}$

ه - $rf \rightarrow \left\{ (2, 2) \right\}$

$h = rf + g = \left\{ (2, 4) \right\}$

④ $\frac{\sqrt{3x-x}}{x-2}$ $\begin{cases} ① x-2 \neq 0 \rightarrow x \neq 2 \\ ② \sqrt{3x-x} \geq 0 \rightarrow 3x-x \geq 0 \rightarrow 2x \geq 0 \rightarrow x \geq 0 \end{cases}$

$[x] + [-x] + 1$

$x \in \mathbb{Z} \rightarrow -1 \neq$

⑥ $f(x) \rightarrow x-x^2-4 \geq 0 \rightarrow x^2-4x+4 \leq 0 \rightarrow (x-2)^2 \leq 0 \rightarrow x=2$

$g(x) = \left\{ (1, 2) \right\}$

$\frac{f(x)}{g(x)} = \left\{ (1, \frac{1}{2}) \right\}$

الف - $y = x^3 - 3x^2 + 3x \rightarrow (x-1)^3 + 1$

$y-1 = (x-1)^3 \rightarrow \sqrt[3]{y-1} = x-1 \rightarrow \sqrt[3]{y-1} + 1 = x \rightarrow P_f = \mathbb{R}$

ب) $yx' - 2xy = 1 \rightarrow yx' - 2xy - 1 = 0$ $\frac{y \pm \sqrt{4y^2 + 4y}}{2y} \rightarrow y' + y \geq 0 \rightarrow \frac{1}{y} \geq -1 \rightarrow y \geq -1$

$\frac{-1 \pm \sqrt{1+4}}{2} = \frac{-1 \pm \sqrt{5}}{2} \rightarrow P_f = (-\infty, -1] \cup (0, +\infty)$

الف - $\frac{-b}{2a} = 2 \rightarrow x = 2 \rightarrow f(2) = 11 \rightarrow y = 4 \rightarrow P_f = [4, +\infty)$

ب) $a < 0$ $\frac{-b}{2a} = 3 \rightarrow -9 + 18 + 3 = 12 \rightarrow P_f = (-\infty, 12]$

ج) $a > 0$ $\frac{-b}{2a} = 2 \rightarrow f(2) = 3 \rightarrow y = -7 \rightarrow P_f = [0, +\infty)$

د) $a < 0$ $\frac{-b}{2a} = -2 \rightarrow -4 + 12 = 8 \rightarrow 18 - 9 = 9 \rightarrow P_f = (-\infty, 9] \rightarrow P_f = [0, 3]$

الف) $P_f = \mathbb{R}$ $\frac{-b}{2a} = 2 \rightarrow f(2) = 3 \rightarrow y = -7 \rightarrow P_f = [0, +\infty)$

ج) $\sqrt{x^2 - 4x + 5} \rightarrow P_f = [0, +\infty)$

د) $(x^2 - 4x + 5) \rightarrow P_f = [0, +\infty)$

الف) $P_f = \mathbb{R}$ $\frac{-b}{2a} = 2 \rightarrow f(2) = 3 \rightarrow y = -7 \rightarrow P_f = [0, +\infty)$

ب) $P_f = \mathbb{R}$