

Date:

Sub:

النسب المثلثية

$$\textcircled{1} \quad \sqrt{x+4}\sqrt{x-4} + \sqrt{x-4}\sqrt{x-4} \xrightarrow{\text{نطاق}} x+4\sqrt{x-4} + x-4\sqrt{x-4} \\ + 2\sqrt{x^2-16(x-4)} = 2x + 2\sqrt{x^2-16x+64} = 2x + 2\sqrt{(x-4)^2} \\ = 2x - 14 \xrightarrow{\text{نطاق}} 2\sqrt{x-4} \Rightarrow \frac{0+2}{-4} = -\frac{1}{2}$$

$$\textcircled{2} \quad \frac{g}{f}(x) = \left\{ \left(2, \frac{1}{-4} \right), \left(0, \frac{2}{\frac{1}{2}} \right) \right\}$$

$$f(1) = \frac{2}{0} \text{ غير معرف}$$

$$f(2) = \frac{2}{0} \text{ غير معرف}$$

$$\textcircled{3} \quad \text{الف) } 2x = 1 \rightarrow x = \frac{1}{2} \Rightarrow f(2x) = \left\{ \left(\frac{1}{2}, 2 \right), \left(\frac{2}{2}, 1 \right), \left(2, 2 \right), \left(\frac{1}{2}, 4 \right) \right\}$$

$$\text{ب) } x^2 = 1 \rightarrow x = \pm 1 \Rightarrow f(x^2) = \left\{ (1, 2), (-1, 2), (\sqrt{2}, -1), (-\sqrt{2}, -1), (2, 2), (-2, 2) \right\}$$

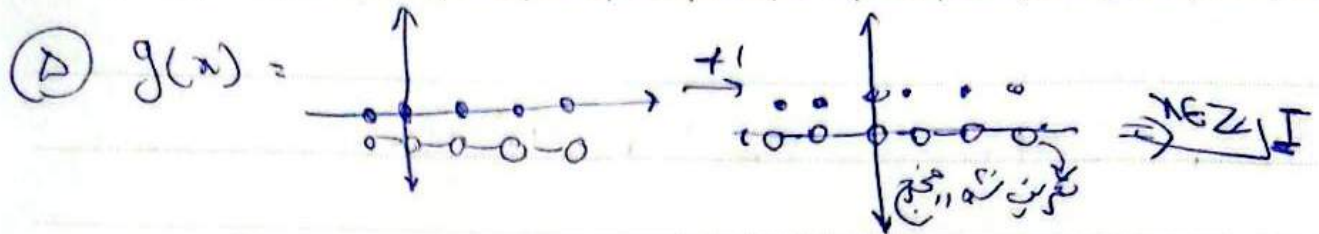
$$\text{ج) } 2g^2(x) + 1 \rightarrow x = -2 \rightarrow g(x) = 2 \rightarrow 19 \Rightarrow \\ 2g^2(x) + 1 = \left\{ (-2, 19), (4, 19), (2, 9), (-1, 1) \right\}$$

$$\text{د) } \frac{2f}{g} \rightarrow x = \left\{ \frac{1}{2}, 1, 2 \right\} \Rightarrow \frac{2f(x)}{g} = \left\{ \frac{2}{1}, \frac{2}{2}, \frac{2}{4} \right\} = \left\{ 2, 1, \frac{1}{2} \right\}$$

$$\textcircled{4} \quad \omega = \{ 2, 2, -2 \} \quad h = 2f + g = \left\{ (2, 4), (2, 4), (-2, 4) \right\}$$

Date:

Sub:



$$f(n)^{r \neq n}, \lambda, 0, \sqrt{n-1} \geq 0 \rightarrow \sqrt{n} \geq \lambda \rightarrow \lambda \in [0, \sqrt{n}]$$

$$I, II \rightarrow D = \{0, 1, 2\}$$

⑥ $\rightarrow \Delta x - x^2 \geq 0 \rightarrow x^2 - \Delta x \leq 0 \rightarrow (x - \frac{\Delta}{2})^2 \leq \frac{\Delta^2}{4}$

$$[1, \varepsilon] \cap D_{g(x)} = \{1, 2, \varepsilon\} \rightarrow I = \{(1, 0), (2, \frac{\varepsilon}{2}), (\varepsilon, 0)\} \rightarrow [1, \varepsilon]$$

⑦ $y = x^3 - 3x^2 + 3x + 1 - 1 \rightarrow y = (x-1)^3 + 1 \rightarrow x = \sqrt[3]{y-1} + 1$
 $\Rightarrow R_f = \mathbb{R}$

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

$$(-\infty, -1] \cup (0, +\infty) \leftarrow \frac{+1-1}{+1-1} +$$

⑧ $\rightarrow \frac{b}{a} = \frac{f}{c} = 2 \xrightarrow{x=2} 2 - 1 + 0 = 1 \rightarrow R = [1, +\infty)$

$$\rightarrow \frac{b}{a} = \frac{-9}{-2} = 2 \xrightarrow{x=2} -9 + 1 + 0 = -8 \rightarrow R = (-\infty, 2]$$

$$\rightarrow 2 \rightarrow \frac{b}{a} = \frac{-9}{-2} = 2 \xrightarrow{x=2} -9 + 1 + 0 = -8 \rightarrow R = [0, +\infty)$$

$$\rightarrow x=2 \rightarrow 9=y \rightarrow R = (-\infty, 9] \rightarrow [0, 3]$$

Date:

Sub:

بہترین نمونہ

(9) ا) $\mathbb{R} \rightarrow \mathbb{R}$ ج $\mathbb{R} \rightarrow [0, +\infty)$
ب) $\mathbb{R} \rightarrow [0, +\infty)$

(10) ا) $\frac{a}{c} = \frac{c}{1} = 1 \rightarrow \mathbb{R} = \mathbb{R} - \{0\}$
ب) $\frac{a}{c} = 1 \rightarrow \mathbb{R} = \mathbb{R} - \{1\}$