

نام و نام خانوادگی ملودی جعفری پاسخنامه تشریحی تکلیف شماره ۵ کلاس ریاضی	
$nf(x) \geq 0$ $\omega = 1$ $f(x) = -5, 2, 5$	۱
$D_f = [-5, 0] \cup [2, 5]$	۱
$\frac{x}{f(x)} \leq 0$ $\omega = 0$ $f(x) = 0, 2, 5, -3$	۲
$h_f = (-3, 2) - \{0\} \rightarrow -2, -1, 1$	۲
$f(x) - f(x) = x^2 - 2x^3 + 2 \Rightarrow -f(x) = x \Rightarrow f(x) = -x$	۳
$f(-1) = \frac{1 - (-1)}{1 + 1} = \frac{2}{2} = 1$ $f(-1) = 1$	۳
$f(1) = 1$ $x \rightarrow 0 \Rightarrow x + 1 = 1 \rightarrow f(0) = 1$ $x \rightarrow \infty \Rightarrow \infty - \sqrt{9} = 1$	۴
$f(x) = \frac{x(x+1)}{x^2+1}$ $f(f(0)) + f(f(1)) = 9$	۴
$f(n-1) - f(n) = 4n + 1$	۵
$a(n-1)^2 - b(n-1) + c = an^2 + bn + c = 0$ $-an + a - bn + b + c = 0$ $-an + a - bn + b + c = 0$ $(a+b)n = a+b-c \Rightarrow n = \frac{a+b-c}{a+b}$ $a-b = -1$ $a = -1, b = 0, c = 1$	۵

$f(x) = \frac{x^2 + 5x + 5}{x^2 + 5x + 4} = \frac{(x+2)^2 + 1}{(x+1)^2 + 3} \rightarrow P(\sqrt{3}-1) = \frac{(\sqrt{3}-1)^2 + 1}{(\sqrt{3}-1+1)^2 + 3} = \frac{3-2\sqrt{3}+1+1}{3} = \frac{5-2\sqrt{3}}{3}$	٤		
$f\left(x - \frac{1}{2x}\right) = x^2 + \frac{1}{x^2} - \frac{1}{x^2} \rightarrow \underbrace{\left(x - \frac{1}{2x}\right)^2}_{-1} + 1 = (-1)^2 + 1 = \boxed{11}$	٧		
الف) $g(x) = \sqrt{4-x^2} \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2$ ب) $\frac{f}{g} = \left\{ \left(0, \frac{2}{\sqrt{2}}\right), \left(1, \frac{-2}{\sqrt{2}}\right), \left(2, \frac{0}{\sqrt{2}}\right) \right\}$ $= \left\{ \left(0, \frac{2}{\sqrt{2}}\right), \left(1, -\sqrt{2}\right), \left(2, 0\right) \right\}$	٨ ج) $\frac{g}{f} = \left\{ \left(0, \frac{2}{\sqrt{2}}\right), \left(1, \frac{-\sqrt{2}}{1}\right) \right\}$ د) $\frac{f}{g} = \left\{ \left(0, \frac{2}{\sqrt{2}}\right), \left(1, \frac{-2}{\sqrt{2}}\right), \left(2, \frac{0}{\sqrt{2}}\right) \right\}$ $= \left\{ \left(0, \frac{2}{\sqrt{2}}\right), \left(1, -\sqrt{2}\right), \left(2, 0\right) \right\}$ هـ) $\frac{g}{f} = \left\{ \left(0, \frac{2}{\sqrt{2}}\right), \left(1, \frac{-\sqrt{2}}{1}\right) \right\}$		
الف) $\left\{ (2, 2), (2, 1), (-5, 4), (1, -4) \right\}$	ب) $\left\{ (1, 2), (3, 5), (-5, 3), (1, -1) \right\}$	ج) $\left\{ (2, 4), (3, 4), (-5, 13), (1, 13) \right\}$	د) $\left\{ (1, 1), \left(\frac{3}{4}, 4\right), \left(\frac{-5}{3}, 2\right), \left(\frac{1}{4}, 2\right) \right\}$ ٩
الف) $A \cap B = \left\{ (1, 2), (2, 2), (2, 1) \right\}$ ب) $\frac{f}{g} = \left\{ \left(2, \frac{4}{1}\right), \left(3, \frac{2}{1}\right) \right\} = \left\{ (2, 4), (3, 2) \right\}$ ج) $f = \left\{ (2, 4), (3, 4), (1, 8), (2, 2), (5, 4) \right\}$ ١٠			