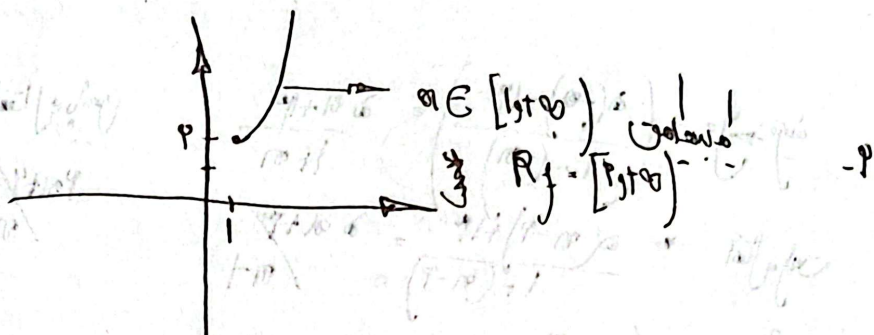


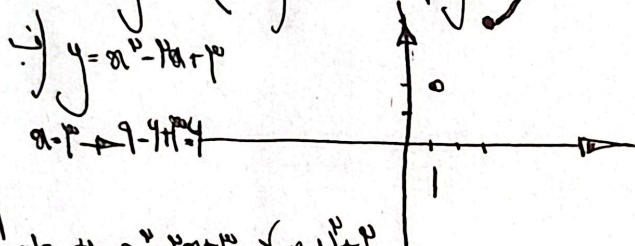
الجزء الثاني

$$\begin{aligned} \text{مثال } x = \frac{y+p}{p} &\Rightarrow \frac{y}{p} + \frac{p}{p} = y \\ y=0 &\Rightarrow \frac{y}{p} + \frac{p}{p} = 0 \Rightarrow y = -\frac{p}{p} = -p \\ \delta = \frac{y}{p} + \frac{p}{p} &= \frac{y}{p} \end{aligned}$$

$$\begin{aligned} \text{الف) } y &= x^p - px + p \\ x_{\min} &= -\frac{b}{a} = \frac{p}{p} = 1 \\ y_{\min} &= 1 - p + p = p \end{aligned}$$



$$\begin{aligned} \text{مثال } y &= x^p - px + p = (x-1)^p + p \\ y-p &= (x-1)^p \Rightarrow \pm \sqrt[p]{y-p+1} = x \rightarrow y = 1 \pm \sqrt[p]{x-p} \Rightarrow y = 1 \pm \sqrt[p]{x-p}, x \in [p, \infty) \end{aligned}$$



$$\text{مثال } y = x^p - px + p = (x-1)^p + p$$

$$\sqrt[p]{y-p} + 1 = x \rightarrow y = 1 \pm \sqrt[p]{x-p} \Rightarrow y = 1 \pm \sqrt[p]{x-p}, x \in [p, \infty)$$

$$f(a) = Pa - \sqrt{1 - 19a + 5a^2} = Pa - \sqrt{1 - 19a + 5a^2} = Pa - |Pa - 1|$$

$$a \gg 1 \rightarrow Pa - Pa + 1 = 1$$

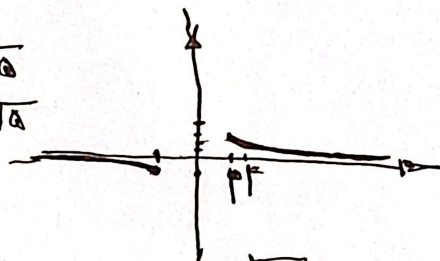
$$a \ll 1 \rightarrow Pa + Pa - 1 = Pa - 1$$

$$f^{-1}(a) = \frac{1}{5}a - \frac{1}{5}g\left(\frac{a}{5}\right)$$

$$a = 0 \rightarrow y = -1 \quad a = 1 \rightarrow y = 0 \quad g = \frac{+1a}{5} = 1$$

$$g = \frac{a}{\sqrt{a^2 - 1}}$$

$$a^2 - 1 > 0 \Rightarrow a > \sqrt{1} \quad a < -\sqrt{1}$$



المعكبر

$$a = 1 \rightarrow y = 1 \quad a = -1 \rightarrow y = -1$$

$$a = 1 \rightarrow y = 1 \quad a = -1 \rightarrow y = -1$$

$$|a| > \sqrt{1} \Rightarrow g = \frac{a}{\sqrt{a^2 - 1}}$$

$$a = 1 \rightarrow y = 1 \quad a = -1 \rightarrow y = -1$$

$$\frac{a}{a^2 - 1} = y \Rightarrow y = \pm \frac{a}{\sqrt{a^2 - 1}}$$

$$f^{-1}(a) \begin{cases} a > 1 \rightarrow +\sqrt{a^2 - 1} \\ a < -1 \rightarrow -\sqrt{a^2 - 1} \end{cases}$$

$$\begin{aligned}
 & \begin{array}{l}
 \frac{a^p - \varepsilon a + k}{-a^p + 4a + 4k} \cdot \frac{a/p}{g_{\text{po}}} \cdot \frac{-b/p}{p_1} = 1 \\
 \Rightarrow 1 + 4k \ll a^{\frac{1}{p}} \Rightarrow 4k \ll -1/p \Rightarrow k \ll -1/4
 \end{array}
 \end{aligned}$$

$$a = p \rightarrow k - \varepsilon = \varepsilon - 1 + k$$

$$a = p \rightarrow 1 + 4k = -1\varepsilon + 1/p + 4^p k$$

$$f(\eta) = p\eta + |\eta|$$

$$\eta \begin{matrix} \nearrow \\ \searrow \end{matrix} \begin{matrix} 0 \\ 0 \end{matrix} = \begin{matrix} f \\ p \end{matrix} \eta$$

$$\Rightarrow f^{-1}(\eta) \begin{matrix} \nearrow \\ \searrow \end{matrix} \begin{matrix} \eta/p \\ \eta/0 \end{matrix}$$

$$a\eta + b|\eta| \rightarrow \eta \begin{matrix} \nearrow \\ \searrow \end{matrix} \begin{matrix} 0 \\ 0 \end{matrix} \Rightarrow a\eta + b\eta = (a+b)\eta = \eta/p \Rightarrow a+b = 1/p$$

$$1 \rightarrow \eta \begin{matrix} \nearrow \\ \searrow \end{matrix} \begin{matrix} 0 \\ 0 \end{matrix} \Rightarrow a\eta - b\eta \Rightarrow a-b = 1/p$$

$$\Rightarrow ab = +\frac{1}{p}a - \frac{1}{p} = -\frac{1}{4p}$$

$$\Rightarrow a = \left(\frac{1}{p} + \frac{1}{p}\right) \frac{1}{p} = \frac{2}{p^2}$$

$$b = \left(\frac{1}{p} - \frac{1}{p}\right) \frac{1}{p} = -\frac{1}{p^2}$$

$$f(x) = \frac{px+q}{x+m} \rightarrow x=p \rightarrow \frac{p+q}{p+m} = -1 \Rightarrow m=-p \rightarrow f(x) = \frac{px+q}{x-p}$$

$$f^{-1}(x) = \frac{px+q}{x-p}$$

$$f \circ f^{-1}(x) = \frac{p \left(\frac{px+q}{x-p} \right) + q}{\frac{px+q}{x-p} - p} = \frac{p(px+q) + q(x-p)}{px+q - p(x-p)} = \frac{p^2x + pq + qx - qp}{px+q - px + p^2} = \frac{p^2x + qx}{px + p^2} = \frac{x(p^2+q)}{p(x+p)} \Rightarrow y = \frac{p^2x+q}{x-p}$$

$$\frac{p^2x+q}{x-p} + x = x \Rightarrow \frac{p^2x+q}{x-p} = 0 \Rightarrow x = \frac{q}{p}$$

$$f(1-pn) = p$$

$$1-g\left(\frac{q}{p}\right) = p$$

$$f^{-1}(p) = 1-pn$$

$$g\left(\frac{q}{p}\right) = -p$$

$$f^{-1}(-p) = \frac{q}{p}$$

$$\Rightarrow \frac{1-pn+q}{p} = \frac{q-qn+q}{p} = \frac{q-qn}{p}$$

$$\frac{q}{p} \rightarrow y = - \left(\frac{q(-n)-1p}{1-(-n)} \right) = \frac{qn+p}{1+n}$$

$$\text{قال بـ } \rightarrow \frac{q(n-p)+1p}{1+(n-p)} = \frac{qn+p}{n-1}$$

$$\frac{qn+p}{n-1} = \frac{p}{n} + p$$

$$\frac{q}{p} \rightarrow \begin{cases} y + f[y] = n \\ y = n + f[n] \end{cases}$$

$$\frac{qn+p}{n-1} = \frac{qn+p-1n+p}{n-1} = \frac{pn+p}{n-1}$$

$$\frac{pn+p}{n-1} = n \quad \Rightarrow \quad pn+p = n(n-1) \Rightarrow pn+p = n^2-n \Rightarrow n^2-pn-p=n$$

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