

ماس بازرگانی حضرت ۱۹-۲۱ یکشنبه	با استفاده از روشی که در کتاب آمده	برتو بروش
$n \neq 0$ $\frac{(n-1)^2 - n^2}{n(n-1)} = \frac{-2n+1}{n^2-n} \geq 0$	$\frac{n}{1} \mid \frac{0}{+} \frac{1}{-} \frac{1}{+} \frac{1}{-} = (-\infty, 0] \cup [1, \infty)$	الف ب
$n \neq -1, 0, 1, 2$ $\frac{3}{n-1} + \frac{1}{n+2} = \frac{4n+5}{(n-1)(n+2)} \neq 0 \Rightarrow 4n+5=0 \Rightarrow n \neq -\frac{5}{4}$	$D = \mathbb{R} - \{-\frac{5}{4}, -2, -1, 0, 1, 2\}$	الف ب
$(3^n - 3^2)(2^5 - 2^{2n}) \geq 0$	$\frac{n}{+} \frac{-2}{+} \frac{5}{-} \frac{2n}{+} \Rightarrow D = (-\infty, -2] \cup [\frac{5}{2}, \infty)$	الف ب
$n \geq 1$ $\sqrt{y+1} = 3 - \sqrt{y-1} \rightarrow 3 \geq \sqrt{y-1}$	$11 \geq n-1 \Rightarrow 12 \geq n$	الف ب
$D = [1, 12]$	$D = [1, 12]$	الف ب
$n^2 \geq 1 \Rightarrow n \geq 1$ و $n \leq -1 \rightarrow (-\infty, -1] \cup [1, \infty)$	$n^2 - n - 2 > 0 \rightarrow \frac{n}{+} \frac{-1}{+} \frac{2}{-} \rightarrow (-\infty, -1) \cup (2, \infty)$	الف ب
$1 \cap 2 = (-\infty, 1) \cup (2, \infty)$	$1 \cap 2 = (-\infty, 1) \cup (2, \infty)$	الف ب
$n = -2 \rightarrow 3 - 2a - b = 0 \Rightarrow a = \frac{-1}{2}$	$n = b \rightarrow 3 - \frac{b}{2} - b^2 = 0 \Rightarrow b = \frac{-1 \pm \sqrt{13}}{2}$	الف ب
$a + b = \frac{3}{2} - \frac{1}{2} = 1$	$a + b = \frac{3}{2} - \frac{1}{2} = 1$	الف ب
$n \geq 1 \rightarrow g(n) = \sqrt{2n-2-n} = \sqrt{n-2} : 2n-2 \geq 0 \Rightarrow n \geq 1 \quad n \in [1, \infty)$	$n < 1 \rightarrow g(n) = \sqrt{2n+2-n} = \sqrt{n+2} : n+2 \geq 0 \Rightarrow n \geq -2 \quad n \in [-2, 1)$	الف ب
$D = 1 \cup 2 = [-2, 1) \cup [1, \infty) = [-2, \infty)$	$D = 1 \cup 2 = [-2, 1) \cup [1, \infty) = [-2, \infty)$	الف ب

$$\sin \frac{\pi}{r} = \frac{\sqrt{r}}{r} \cdot \cos r\pi = 1 \quad f\left(\sin \frac{\pi}{r} + \cos r\pi\right) = f\left(\frac{\sqrt{r}}{r} + 1\right)$$

$$f(a) = r a^r - f a \rightarrow r\left(\frac{\sqrt{r}}{r} + 1\right)^r - f\left(\frac{\sqrt{r}}{r} + 1\right) = \frac{r}{r} + r\sqrt{r} - r\sqrt{r} - f = \frac{r}{r} - f = -\frac{1}{r} \quad \checkmark \quad \textcircled{D}$$

$$f(a) = \frac{a+1}{a-1}$$

$$f(f(a)) = f\left(\frac{a+1}{a-1}\right) = \frac{\frac{a+1}{a-1} + 1}{\frac{a+1}{a-1} - 1} = \frac{\frac{ra}{a-1}}{\frac{r}{a-1}}$$

$$f(f(a)) = \frac{ra}{a-1} \times \frac{a-1}{r} = a \quad \checkmark \quad \textcircled{D}$$

$$a \neq 0 \Rightarrow a \neq 1$$

$$g(a) = \sqrt{a^r - 1}$$

$$f(g(a)) = f(\sqrt{a^r - 1}) = a^r - 1 - f \times \sqrt{a^r - 1} = -f$$

$$\sqrt{a^r - 1} = a \rightarrow a^r - f a + f = 0 \quad (a-r)^r = 0 \Rightarrow a = r \quad \checkmark \quad \textcircled{D}$$

$$\sqrt{a^r - 1} = r \quad a^r = 1 + f \Rightarrow a = \pm \sqrt[r]{1+f}$$

$$n+r = -r \Rightarrow n = -2r$$

$$f(-r) = r^2 + r + r = 2r$$

$$n+r = f \Rightarrow n = 1$$

$$f(f) = 1 - 2 + 2 = 1 \quad \checkmark \quad \textcircled{D}$$

$$f(f) \times f(-r) = 1 \times 2r = 2rf \quad \checkmark$$

$$f \cos^r n + a \cos n = r/a \quad \cos n = t \rightarrow f t^r + a t - r/a = 0 \quad t = \left[\frac{-\frac{a}{f} \pm \sqrt{\frac{a^2}{f^2} - 4 \left(-\frac{r}{a}\right)}}{2} \right] \quad \checkmark$$

$$n = r k \pm \frac{\pi}{r}$$

$$f(r, a) = \tan^r n \Rightarrow f(r, a) = (\pm \sqrt[r]{r})^r = r \quad \checkmark \quad \textcircled{D}$$

$$\cos n = \frac{1}{f}$$