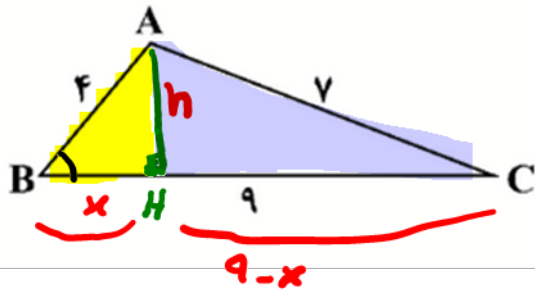


در مثلث مقابل، مقدار  $\tan \hat{B}$  کدام است؟ -1



$$\frac{2\sqrt{5}}{3} \quad (2)$$

$$\frac{\sqrt{5}}{2} \quad (4)$$

$$\frac{\sqrt{5}}{3} \quad (1)$$

$$\frac{2\sqrt{5}}{5} \quad (3)$$

$$14 = h^2 + x^2 \rightarrow \underline{h^2 = 14 - x^2}$$

$$49 = h^2 + (9-x)^2 \quad \underline{h^2 = 14 - x^2} \rightarrow 49 = 14 - x^2 + 81 - 18x + 18x + 81 \rightarrow 18x = 48 \rightarrow x = \frac{48}{18} = \frac{24}{9} = \frac{8}{3}$$

$$\underline{x = \frac{8}{3}} \quad / \quad h^2 = 14 - x^2 = 14 - \frac{64}{9} \rightarrow h^2 = \frac{120}{9} \rightarrow h = \frac{\sqrt{120}}{3} = \frac{2\sqrt{30}}{3} \rightarrow \underline{h = \frac{2\sqrt{30}}{3}}$$

$$\tan \hat{B} = \frac{h}{x} = \frac{\frac{2\sqrt{30}}{3}}{\frac{8}{3}} = \frac{2\sqrt{30}}{8} = \frac{\sqrt{30}}{4}$$

مقدار  $\sin\left(\frac{497\pi}{42}\right)$  کدام است؟ -۲

$$-\frac{\sqrt{3}}{2} \quad (۴)$$

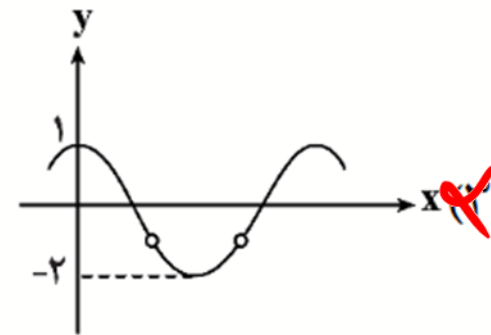
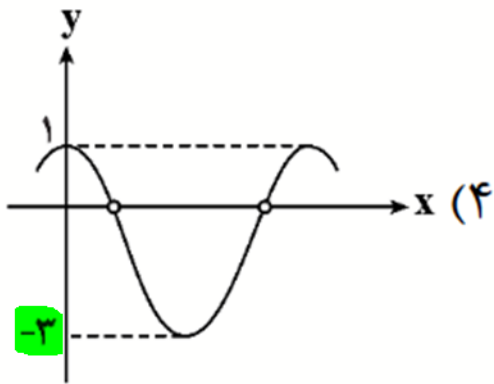
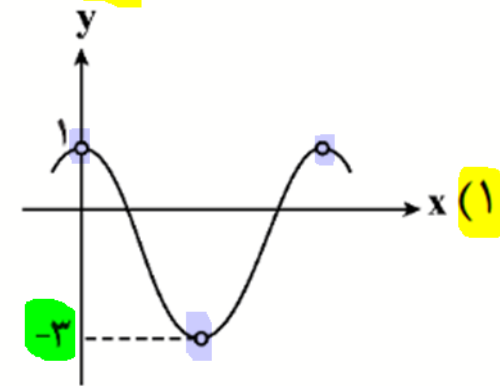
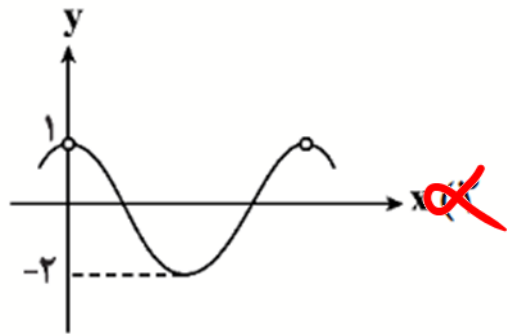
$$\frac{\sqrt{3}}{2} \quad (۳)$$

$$-\frac{1}{2} \quad (۲)$$

$$\frac{1}{2} \quad (۱)$$

$$\begin{aligned} \sin\left(\frac{497\pi}{42}\right) &= \sin\left(\frac{420\pi}{42} + \frac{77\pi}{42}\right) = \sin\left(\frac{77\pi}{42}\right) = \sin\left(\pi + \frac{35\pi}{42}\right) = \sin\left(\pi + \frac{5\pi}{6}\right) \\ &= \sin\left(2\pi - \frac{\pi}{6}\right) = \sin\left(-\frac{\pi}{6}\right) = -\sin\left(\frac{\pi}{6}\right) = -\frac{1}{2} \end{aligned}$$

۳- نمودار تابع  $f(x) = \frac{2 \sin x \cos x - \sin x}{\sin x}$  به کدام صورت است؟



$$\frac{\cancel{\sin x} (2 \cos x - 1)}{\cancel{\sin x}} = 2 \cos x - 1$$

$\max = 1$   
 $\min = -3$

$\sin x \neq 0 \rightarrow x \neq 0 / \pi / 2\pi \dots$

۴- دوره تناوب تابع  $f(x) = a \sin(4\pi bx) - 2$  با دوره تناوب تابع  $g(x) = 2 \tan x - 3$  برابر است. مقدار  $g\left(\frac{1}{\lambda|b|}\right)$  کدام است؟

$$\frac{2\sqrt{3}}{3} - 3 \quad (4)$$

$$-1 \quad (3)$$

$$2\sqrt{3} - 3 \quad (2)$$

$$1 \quad (1)$$

$$T_1 = T_2 \rightarrow \frac{2\pi}{4\pi|b|} = \frac{\pi}{1} \rightarrow |b| = \frac{1}{2\pi}$$

$$g\left(\frac{1}{\lambda|b|}\right) = g\left(\frac{\pi}{\pi}\right)$$

$$g(x) = 2 \tan x - 3 \rightarrow g\left(\frac{\pi}{\pi}\right) = 2 \tan\left(\frac{\pi}{\pi}\right) - 3 = 2 \cdot 3 = -1$$

۵- چند جمله‌ای  $P(x) = x^{10} + 3x^9 + mx^8 - x + 1$  بر  $x-1$  بخش پذیر است. اگر خارج قسمت تقسیم  $P(x)$  بر  $x-1$ ، چند جمله‌ای  $q(x)$  باشد، باقی مانده تقسیم  $q(x)$  بر  $x-1$  کدام است؟

۴ (۴)

۳ (۳)

۲ (۲)

۱ (۱)

$$P(1) = 0 \rightarrow 4 + m = 0 \rightarrow \underline{m = -4}$$

$$P(x) \mid x-1$$

$$\underline{q(x)}$$

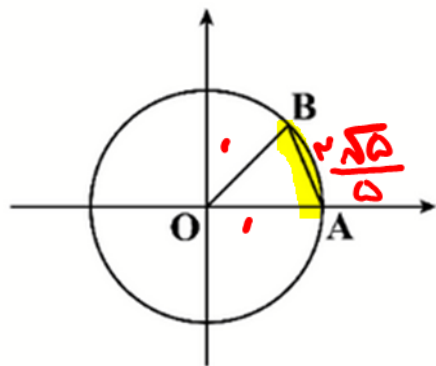
$$\begin{array}{r} x^{10} + 3x^9 - 4x^8 - x + 1 \mid x-1 \\ \underline{x^{10} - x^9} \phantom{- 4x^8 - x + 1} \\ 4x^9 - 4x^8 - x + 1 \\ \underline{4x^9 - 4x^8} \phantom{- x + 1} \\ -x + 1 \\ \underline{-x + 1} \\ 0 \end{array}$$

$$\underline{q(1) = ?}$$

$$q(x) = x^9 + 3x^8 - 1$$

$$\rightarrow \underline{q(1) = 4}$$

۶- در دایره مثلثاتی شکل مقابل، محیط مثلث OAB برابر  $\frac{10+2\sqrt{5}}{5}$  است. مساحت این مثلث کدام است؟



- (۱)  $\frac{\sqrt{5}}{2}$
- (۲)  $\frac{\sqrt{5}}{4}$
- (۳)  $\frac{2}{5}$
- (۴)  $\frac{4}{5}$

$$P = \frac{10+2\sqrt{5}}{5} = 2 + \frac{2\sqrt{5}}{5}$$

$$S = \frac{1}{2} \times OB \times OA \times \sin \alpha = \frac{1}{2} \times 1 \times 1 \times \frac{4}{5} = \frac{2}{5}$$

$$\left. \begin{array}{l} A(1, 0) \\ B(\cos \alpha, \sin \alpha) \end{array} \right\} d = \frac{2\sqrt{5}}{5} \rightarrow (1 - \cos \alpha)^2 + \sin^2 \alpha = \frac{4}{5} \rightarrow \cos^2 \alpha + 1 - 2\cos \alpha + \sin^2 \alpha = \frac{4}{5}$$

$$2 - 2\cos \alpha = \frac{4}{5} \rightarrow 2\cos \alpha = \frac{4}{5} \rightarrow \underline{\cos \alpha = \frac{2}{5}} \quad / \quad \underline{\sin \alpha = \frac{4}{5}}$$

تابع  $f(x) = m \tan(3\pi - x) + 2 \tan(\pi + x)$  روی بازه  $(-\frac{\pi}{2}, \frac{\pi}{2})$  اکیداً نزولی است. حدود  $m$  کدام است؟ -۷

$$-2 < m < 0 \quad (4)$$

$$0 < m < 2 \quad (3)$$

$$m < -2 \quad (2)$$

$$m > 2 \quad (1)$$

$$f(x) = -m \tan x + 2 \tan x = \underline{(2-m) \tan x}$$

$$2-m < 0 \rightarrow \underline{m > 2}$$

۸- چند عدد حقیقی در دامنه تابع  $f(x) = \tan\left(\frac{8\pi}{x^2+2}\right)$  قرار ندارند؟

۱۰ (۴)

۸ (۳)

۶ (۲)

۴ (۱)

$\tan(x) \rightarrow$  تن  $\rightarrow x = \dots -\frac{\pi}{2}, \frac{\pi}{2}, \frac{3\pi}{2}, \dots$

$\frac{8\pi}{x^2+2} = \frac{\pi}{2} \rightarrow x^2 = 14 \rightarrow x = \pm\sqrt{14}$

$\frac{8\pi}{x^2+2} = \frac{3\pi}{2} \rightarrow x^2 = \frac{14}{3} - 2 = \frac{10}{3} \rightarrow x = \pm\sqrt{\frac{10}{3}}$

$\frac{8\pi}{x^2+2} = \frac{5\pi}{2} \rightarrow x^2 = \frac{14}{5} - 2 = \frac{4}{5} \rightarrow x = \pm\sqrt{\frac{4}{5}}$

$\frac{8\pi}{x^2+2} = -\frac{\pi}{2} \rightarrow x^2 = -18 \times$

$\frac{8\pi}{x^2+2} = \frac{7\pi}{2} \rightarrow x^2 = \frac{14}{7} - 2 = \frac{2}{7} \rightarrow x = \pm\sqrt{\frac{2}{7}}$

$\frac{8\pi}{x^2+2} = \frac{9\pi}{2} \rightarrow x^2 = \frac{14}{9} - 2 = -\frac{14}{9} \times$



۹- اگر  $\sqrt[5]{a\sqrt[3]{a^2}} = 16$  ، مقدار  $\sqrt[3]{a^2\sqrt[4]{a}}$  کدام است؟

۱۰۲۴ (۴)

۵۱۲ (۳)

۱۲۸ (۲)

۳۲ (۱)

$$\sqrt[5]{a\sqrt[3]{a^2}} = \sqrt[5]{a \cdot a^{\frac{2}{3}}} = \sqrt[5]{a^{\frac{5}{3}}} = a^{\frac{5}{3} \times \frac{1}{5}} = a^{\frac{1}{3}} = 16 \rightarrow a = 14^3$$

$$\sqrt[3]{a^2\sqrt[4]{a}} = \sqrt[3]{a^2 \cdot a^{\frac{1}{4}}} = \sqrt[3]{a^{\frac{9}{4}}} = a^{\frac{9}{4} \times \frac{1}{3}} = a^{\frac{3}{4}} = 9 \rightarrow a = 14^3 = 2^{14}, \sqrt[3]{2^{14} \cdot 2^{\frac{14}{4}}} = 2^9 = 512$$

۱۰- اگر  $a^{\frac{1}{a}} = \frac{1}{4}$  ، مقدار  $(\frac{1}{a})^a$  کدام است؟

$$\frac{\sqrt{2}}{2} \quad (۴)$$

$$\sqrt{2} \quad (۳)$$

$$\frac{1}{2} \quad (۲)$$

$$2 \quad (۱)$$

$$a^{\frac{1}{a}} = \left(\frac{1}{4}\right)^{\frac{1}{a}} \rightarrow a = \frac{1}{4}$$

$$\left(\frac{1}{a}\right)^a = \frac{1}{4} \rightarrow (2)^{\frac{1}{2}} = \sqrt{2}$$

۱۱- حاصل عبارت  $A = \frac{1}{x} + \frac{1}{x-1} + \frac{1}{x^2-x}$  به ازای  $x = 3 - \sqrt{2}$  کدام است؟

$$\sqrt{2} + 1 \quad (4)$$

$$1 - \sqrt{2} \quad (3)$$

$$2 - \sqrt{2} \quad (2)$$

$$2 + \sqrt{2} \quad (1)$$

$$A = \frac{x + x + 1}{x(x-1)} = \frac{2x + 1}{x(x-1)} = \frac{2}{x-1} \xrightarrow{x = 3 - \sqrt{2}} \frac{2}{2 - \sqrt{2}} \times \frac{2 + \sqrt{2}}{2 + \sqrt{2}} = \frac{2(2 + \sqrt{2})}{2} = 2 + \sqrt{2}$$

۱۲- کدام یک، عدد بزرگ تری است؟

$\sqrt[3]{15}$  (۴)

~~$\sqrt[3]{15-1}$  (۳)~~

~~$\sqrt[3]{2}$  (۲)~~

$\sqrt[3]{2+1}$  (۱)

Handwritten mathematical analysis in Persian:

۱-  $\sqrt[3]{2+1}$  (۱)  $\sqrt[3]{2} < 1 < \sqrt[3]{2+1}$

۲-  $\sqrt[3]{2}$  (۲)  $1 < \sqrt[3]{2} < \sqrt[3]{2+1}$

۳-  $\sqrt[3]{15-1}$  (۳)  $\sqrt[3]{15} < \sqrt[3]{15-1} < \sqrt[3]{15}$

۴-  $\sqrt[3]{15}$  (۴)  $\sqrt[3]{15} < \sqrt[3]{15-1} < \sqrt[3]{15}$

۱۳- اگر  $x = (\sqrt{4} - \sqrt{2})(\sqrt{4} + \sqrt{2} + 2)$  مقدار  $\frac{2}{\sqrt[6]{x}}$  کدام است؟

$$\sqrt[4]{32} \quad (۴)$$

$$\sqrt[3]{128} \quad (۳)$$

$$\sqrt[9]{256} \quad (۲)$$

$$\sqrt[6]{128} \quad (۱)$$

$$\sqrt[3]{\frac{2}{x}} - \sqrt[3]{\frac{2}{x}} + \sqrt[3]{\frac{2}{x}} = \sqrt[3]{\frac{2}{x}} = \sqrt[3]{\frac{2}{x}}$$

$$\frac{\sqrt[3]{2}}{\sqrt[3]{x}} = \frac{2^{\frac{1}{3}}}{x^{\frac{1}{3}}} = \frac{2^{\frac{1}{3}} \cdot x^{\frac{2}{3}}}{x^{\frac{1}{3}} \cdot x^{\frac{2}{3}}} = \frac{2^{\frac{1}{3}} \cdot x^{\frac{2}{3}}}{x} = 2^{\frac{1}{3}} \cdot x^{-\frac{1}{3}} = 2^{\frac{1}{3}} \cdot \frac{1}{\sqrt[3]{x}} = \sqrt[3]{\frac{2}{x}}$$

۱۴- اگر جواب معادله  $\sqrt{x + \frac{1}{x}} + \sqrt{x - \frac{1}{x}} = \frac{4}{x}$  باشد، مقدار  $\sqrt{\alpha + \frac{1}{\alpha}} - \sqrt{\alpha - \frac{1}{\alpha}}$  کدام است؟

$$-\frac{1}{2} \quad (۴)$$

$$\frac{1}{2} \quad (۳)$$

$$2 \quad (۲)$$

$$1 \quad (۱)$$

$$\sqrt{\alpha + \frac{1}{\alpha}} + \sqrt{\alpha - \frac{1}{\alpha}} = \frac{4}{\alpha}$$

$$\sqrt{\alpha + \frac{1}{\alpha}} - \sqrt{\alpha - \frac{1}{\alpha}} = A$$

$$\left( \sqrt{\alpha + \frac{1}{\alpha}} + \sqrt{\alpha - \frac{1}{\alpha}} \right) \left( \sqrt{\alpha + \frac{1}{\alpha}} - \sqrt{\alpha - \frac{1}{\alpha}} \right) = \frac{4A}{\alpha}$$

$$\alpha + \frac{1}{\alpha} - \alpha + \frac{1}{\alpha} = \frac{4}{\alpha} = \frac{4A}{\alpha} \rightarrow A = \frac{1}{2}$$

۱۵- اگر  $x > 1$  و  $x^x + \frac{1}{x^x} = 23$ ، مقدار  $x^x - \frac{1}{x^x}$  کدام است؟ آزمون وی ای پی

$$5\sqrt{21} \quad (4)$$

$$22 \quad (3)$$

$$15\sqrt{3} \quad (2)$$

$$10\sqrt{7} \quad (1)$$

$$x^x + \frac{1}{x^x} = 23 \rightarrow x^x + \frac{1}{x^x} + y = 23 \rightarrow x^x + \frac{1}{x^x} = 23 - y$$

$$A = x^x - \frac{1}{x^x} \rightarrow A^2 = x^x + \frac{1}{x^x} - y = 23 - y - y = 23 - 2y \rightarrow A^2 = 23 - 2y \rightarrow A = \sqrt{23 - 2y} = 5\sqrt{21}$$

۱۶- حاصل عبارت  $A = \frac{\sqrt{4-\sqrt{12}}}{\sqrt{6-\sqrt{27}}} - \frac{5}{3+3\sqrt{6}}$  ، کدام است؟

$$\frac{\sqrt{3}}{2} \quad (۴)$$

$$\frac{1}{3} \quad (۳)$$

$$\frac{1}{2} \quad (۲)$$

$$\frac{\sqrt{2}}{3} \quad (۱)$$

$$\sqrt{4-\sqrt{12}} = \sqrt{\frac{4 \cdot 4 - 4\sqrt{12}}{4}} = \sqrt{\frac{(\sqrt{4}-\sqrt{3})^2}{4}} = \frac{\sqrt{4}-\sqrt{3}}{2}$$

$$\sqrt{6-\sqrt{27}} = \sqrt{\frac{12-3\sqrt{27}}{4}} = \sqrt{\frac{(3-\sqrt{3})^2}{4}} = \frac{3-\sqrt{3}}{2}$$

$$\frac{\sqrt{4-\sqrt{12}}}{\sqrt{6-\sqrt{27}}} = \frac{(\sqrt{4}-\sqrt{3})(\cancel{\sqrt{3}})}{(3-\sqrt{3})(\cancel{\sqrt{3}})} = \frac{\sqrt{4}-\sqrt{3}}{3-\sqrt{3}} \times \frac{3+\sqrt{3}}{3+\sqrt{3}} = \frac{3\sqrt{4} + 3\sqrt{3} - 3\sqrt{3} - \sqrt{12}}{9-3} = \frac{3\sqrt{4}-\sqrt{12}}{6}$$

$$\frac{5}{3+3\sqrt{6}} \times \frac{3-\sqrt{6}}{3-\sqrt{6}} = \frac{5(3-\sqrt{6})}{9-6} = \frac{3\sqrt{6}-5}{3} = \frac{\sqrt{6}}{3} - \frac{5}{3}$$

$$A = \frac{\sqrt{4-\sqrt{12}}}{\sqrt{6-\sqrt{27}}} - \frac{5}{3+3\sqrt{6}} = \frac{1}{3}$$



۱۷- اگر  $a = \sqrt{2} + \sqrt{3} + \sqrt{6}$ ، مقدار عبارت  $A = \frac{a^2 + a^2 + 1}{a^2 + a + 1} - a$  کدام است؟

$$12 + 4\sqrt{2} + 2\sqrt{3} \quad (2)$$

$$14 + 4\sqrt{6} \quad (1)$$

$$12 + 2\sqrt{2} + 4\sqrt{3} \quad (4)$$

$$14 + 2\sqrt{2} + 2\sqrt{3} + 2\sqrt{6} \quad (3)$$

$$a^k + a^k + 1 = a^k + 2a^k + 1 - a^k = (a^k + 1)^2 - a^k = (a^k + a + 1)(a^k - a + 1)$$

$$A = \frac{a^k + a^k + 1}{a^k + a + 1} - a = \frac{(a^k + a + 1)(a^k - a + 1)}{(a^k + a + 1)} - a = a^k - a + 1$$

$$a = \sqrt{2} + \sqrt{3} + \sqrt{6} \rightarrow a^2 - 2a + 1 = (\sqrt{2} + \sqrt{3} + \sqrt{6})^2 - 2(\sqrt{2} + \sqrt{3} + \sqrt{6}) + 1 = 2 + 3 + 6 + 2\sqrt{2} + 2\sqrt{3} + 2\sqrt{6} - 2\sqrt{2} - 2\sqrt{3} - 2\sqrt{6} + 1 = 12 + 4\sqrt{2} + 2\sqrt{3}$$

۱۸- اگر زاویه‌های حاده باشد و  $\frac{1}{\sin \alpha} - \frac{1}{\cos \alpha} = \frac{91}{40}$ ، مقدار  $\tan \alpha$  کدام است؟

$$\frac{12}{13} \quad (4)$$

$$\frac{5}{13} \quad (3)$$

$$\frac{12}{5} \quad (2)$$

$$\frac{5}{12} \quad (1)$$

$$\frac{\cos \alpha - \sin \alpha}{\sin \alpha \cos \alpha} = \frac{91}{40} \rightarrow \frac{t}{1-t^2} = \frac{91}{40} \rightarrow 40t = 91(1-t^2) \rightarrow 40t = 91 - 91t^2 \rightarrow 91t^2 + 40t - 91 = 0 \rightarrow (7t+13)(13t-7) = 0$$

$t = \frac{7}{13}$  ✓  
 $t = -\frac{13}{7}$  غلط

$$\cos \alpha - \sin \alpha = t \rightarrow 1 - \sin \alpha \cos \alpha = t^2 \rightarrow \sin \alpha \cos \alpha = \frac{1-t^2}{2}$$

$$\begin{aligned} \cos \alpha - \sin \alpha &= \frac{7}{13} \\ \cos \alpha \cdot \sin \alpha &= \frac{40}{149} \end{aligned} \rightarrow \cos \alpha = \frac{7}{13} + \sin \alpha$$

$$\frac{1}{\sin \alpha} > \frac{1}{\cos \alpha} \rightarrow \cos \alpha > \sin \alpha \rightarrow \cos \alpha - \sin \alpha > 0$$

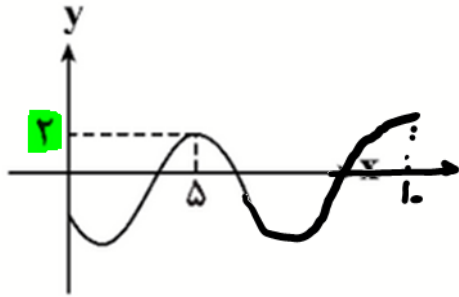
$$\cos \alpha - \sin \alpha = \frac{7}{13} \quad \cos \alpha = \sin \alpha + \frac{7}{13} \quad (\sin \alpha + \frac{7}{13})(\sin \alpha) = \frac{40}{149} \rightarrow 149 \sin^2 \alpha + 91 \sin \alpha - 40 = 0$$

$\sin \alpha = \frac{0}{13}$  ✓  $\rightarrow$   $\cos \alpha = \frac{13}{13}$   
 $\sin \alpha = -\frac{13}{13}$  ✗

$\tan \alpha = \frac{\sin \alpha}{\cos \alpha} = \frac{0}{13}$

۱۹- قسمتی از نمودار تابع  $f(x) = a \sin\left(\frac{\pi}{b}(x + \delta)\right) - 1$  در شکل مقابل رسم شده است. مقدار **ab** کدام است؟

**(a > 0 و b ∈ ℕ)**



~~۲۰ (۲)~~

**۱۲ (۴)**

~~$\frac{20}{3} (1)$~~

~~$\frac{20}{7} (3)$~~

$ab = 4 \times 3 = 12$

$f(x) = a \sin\left(\frac{\pi x}{b} + \frac{\Delta\pi}{b}\right) - 1$

**Max = 2** →  $|a| - 1 = 2 \rightarrow |a| = 3 \xrightarrow{a > 0} \underline{a = 3}$

$f(5) = 2 \rightarrow 3 \sin\left(\frac{10\pi}{b}\right) - 1 = 2 \rightarrow \sin\left(\frac{10\pi}{b}\right) = 1$

$0 < T < 1 \rightarrow 0 < \frac{4\pi}{b} < 1 \rightarrow 4 < 4b < 1 \rightarrow \frac{4}{4} < b < \frac{4}{1} \xrightarrow{b \in \mathbb{N}} \begin{cases} b = 3 \rightarrow \sin\left(\frac{10\pi}{3}\right) = -\frac{\sqrt{3}}{2} \\ \underline{b = 4} \rightarrow \sin\left(\frac{10\pi}{4}\right) = 1 \end{cases}$

۲۰- اگر  $a$  و  $b$  دو عدد حقیقی مثبت و متمایز باشند به طوری که  $a^3 = a^2b + 1$  و  $b^3 = a^2b - 1$  مقدار  $b^3$  کدام است؟

$$\frac{3 - \sqrt{5}}{2} \quad (۴)$$

$$\frac{3 + \sqrt{5}}{2} \quad (۳)$$

$$\frac{\sqrt{5} + 1}{2} \quad (۲)$$

$$\frac{\sqrt{5} - 1}{2} \quad (۱)$$

$$a^3 + b^3 = 2a^2b \rightarrow a^3 - 2a^2b + b^3 = 0 \rightarrow a^3 - b^3 - 2a^2b + 2b^3 = 0 \rightarrow (a-b)(a^2 + ab + b^2) - 2b(a^2 - b^2) = 0$$

$$(a-b)(a^2 + ab + b^2) - 2b(a-b)(a+b) = 0 \rightarrow (a-b)(a^2 + ab + b^2 - 2ab - 2b^2) = 0$$

$$(a-b)(a^2 - ab - b^2) = 0 \begin{cases} a = b \times \\ a^2 - ab - b^2 = 0 \checkmark \end{cases}$$

$$a^2 - ab - b^2 = 0 \xrightarrow{\times \frac{1}{ab}} \frac{a}{b} - 1 - \frac{b}{a} = 0 \xrightarrow{\frac{a}{b} = t} t - 1 - \frac{1}{t} = 0 \rightarrow t^2 - t - 1 = 0 \begin{cases} t = \frac{1 + \sqrt{5}}{2} \checkmark \\ t = \frac{1 - \sqrt{5}}{2} \times \end{cases}$$

$$\frac{a}{b} = \frac{1 + \sqrt{5}}{2} \rightarrow a = \left(\frac{1 + \sqrt{5}}{2}\right)b \quad / \quad b^3 = a^2b - 1 \rightarrow b^3 = \left(\frac{\sqrt{5} + 1}{2}\right)^2 b^2 \times b - 1$$

$$\hookrightarrow \left(\frac{4 + 2\sqrt{5}}{4} - 1\right)b^3 = 1 \rightarrow b^3 = \frac{2}{\sqrt{5} + 1} \times \frac{\sqrt{5} - 1}{\sqrt{5} - 1} = \frac{\sqrt{5} - 1}{2}$$