

$$\boxed{1-4} \quad a, 1+2a, \delta-a$$

$$\Rightarrow 2(1+2a) = \delta - a + a = \delta$$

$$\Rightarrow 2+4a = \delta \Rightarrow a = \frac{\delta}{4} \Rightarrow a_1 = \frac{\delta}{4}, d = 1+a = \frac{5}{4}$$

$$a_9 = a_1 + 1d = \frac{\delta}{4} + 1\delta = 1\delta, 5\delta \rightarrow \text{نیزه}$$

$$\boxed{3-1} \quad \text{مجموع ریشه ها} = \alpha + \beta = S = -\frac{b}{a}$$

$$x^2 - Sx + P = 0$$

$$\begin{aligned} \Rightarrow (-1, \delta, -4): & \quad 1, 2\delta + 1, \delta S + P = -4 \\ & \quad 9 - 3S + P = -4 \end{aligned} \quad \left. \begin{aligned} & \Rightarrow 1, 2\delta + 1, \delta S = 9 - 3S \\ & \Rightarrow 4, \delta S = 4, 5\delta \end{aligned} \right\}$$

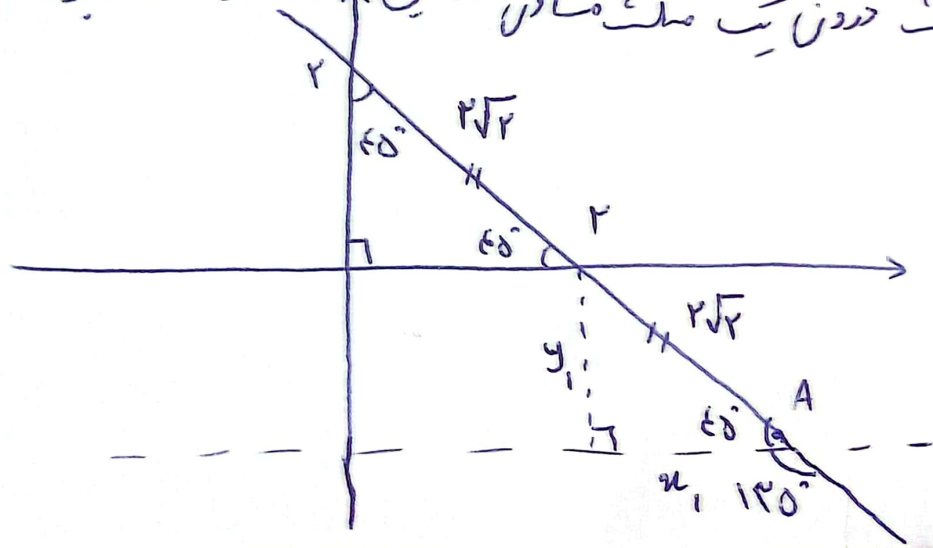
$$S = \frac{4, 5\delta}{4, \delta} = 1, \delta = \frac{\delta}{1} \rightarrow \text{نیزه}$$

۴-۴ اختلاف ریشه: $\frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{4K^2 - 20}}{1} = \frac{4}{3}K \Rightarrow 4K^2 - 20 = \frac{16}{9}K^2 \Rightarrow \frac{20}{9}K^2 = 20$

$\Rightarrow K^2 = 9 \Rightarrow K = \pm 3 \rightarrow \left[\frac{K^2}{3} \right] = \left[\frac{9}{3} \right] = [3, 0] = 3 \rightarrow$ ریشه

۵-۱

ثابت می‌شود مثل درون یک مثلث مساوی الساقین قائم الزامیه خواهد بود



$$\frac{x}{2} + \frac{y}{2} = 1$$

$$x + y = 2$$

$$x_1 = 2\sqrt{2} \cos 45^\circ = 2 \rightarrow A(2, -2)$$

$$y_1 = 2\sqrt{2} \sin 45^\circ = 2$$

$$\Rightarrow \sqrt{14+4} = \sqrt{18} = 3\sqrt{2}$$

گزینه ۱

4-2

$$\left. \begin{aligned} f(a f(\sqrt{5})) &= 2 \\ f(x) &= x^2 - [x] \\ f(\sqrt{5}) &= 5 - 2 = 3 \end{aligned} \right\}$$

$$\left. \begin{aligned} f(3a) &= 2 \\ 9a^2 - [3a] &= 2 \end{aligned} \right\} \begin{array}{l} \text{جایگزینی} \\ \text{فرم} \end{array} \rightarrow a = -\frac{1}{3}$$

V-2

$$\sqrt{n} + \sqrt{n-a} = a$$

$$\sqrt{n-a} = -\sqrt{n-a} \Rightarrow n + a^2 - 2a\sqrt{n} = n - a$$

$$\Rightarrow a^2 + a = 2a\sqrt{n} \Rightarrow \sqrt{n} = \frac{a^2 + a}{2a} = \frac{a+1}{2} \in \mathbb{Z}$$

$$a = 1, 3, 5, 7, 9 \rightarrow \text{فرم}$$

1-2

$$y=1 \rightarrow 1 \cdot y - x = -1$$

$$1 - x = -1 \Rightarrow x = 2$$

$$f' \rightarrow (2, 1) \quad f \rightarrow (1, 2)$$

$$f(1) = 2 \Rightarrow a = 12 \quad \text{نکته ۲}$$

9-4

$$\log_2 (x^2 + 2x + 1)(x-2) = 3 \Rightarrow$$

$$x^3 - 1 = 1$$

$$\Rightarrow x^3 = 2$$

$$x = 2^{\frac{1}{3}}$$

$$\Rightarrow \log_2 \frac{x}{\sqrt{x}} = \log_2 x^{\frac{1}{2}} = \frac{\frac{1}{2}}{\frac{1}{2}} = 1 \quad \text{نکته ۴}$$

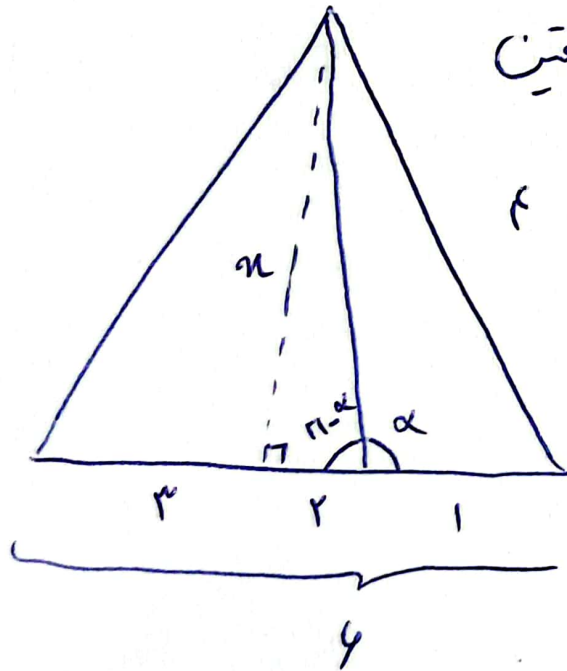
10-1

$$(0, 2) \rightarrow 2 = C + \log_b b \rightarrow C = 2 - \log_b b$$

$$(2, 4, 0) \rightarrow 0 = C + \log_b 2, 4a + b \Rightarrow 2 - \log_b b + \log_b 2, 4a + b = 0$$

$$\Rightarrow \log_b \frac{2, 4a + b}{b} = -2 \Rightarrow 2, 4 \frac{a}{b} + 1 = \frac{1}{2, 4} \Rightarrow -\frac{2, 4}{2, 4} \times \frac{1}{2, 4} = -\frac{1}{2, 4} = -\frac{2}{5} \quad \text{گزینہ ۱}$$

11-3



اولاً کہ ارتفاع در مثل مساوی الساقین
میانه هم می باشد.

$$\tan(\pi - \alpha) = -\tan \alpha = -\frac{\sqrt{5}}{2} \quad \text{گزینہ ۳}$$

$$n = \sqrt{14 - 9} = \sqrt{5}$$

12-2

$$\begin{aligned}
 r \cos x + r \left(\frac{\sqrt{r}}{r} \sin x - \frac{\sqrt{r}}{r} \cos x \right) &\rightarrow r \cos \frac{\pi}{4} + r \left(\sin \left(\frac{\pi}{4} - \frac{\pi}{4} \right) \right) \\
 &\quad \downarrow \quad \quad \quad \downarrow \\
 &\quad \cos \frac{\pi}{4} \quad \quad \sin \frac{\pi}{4} \\
 &= r \times \frac{1}{r} + r \sin \left(-\frac{\pi}{4} \right) = \frac{r}{r} - 1 = \frac{1}{r}
 \end{aligned}$$

قریبی

اتحاد مربع دو جمله ای

$$= \frac{(\sin^2 \alpha - r)^r}{r - \sin^2 \alpha} - \frac{(\cos^2 \alpha - r)^r}{r - \cos^2 \alpha} = (r - \sin^2 \alpha) - (r - \cos^2 \alpha) = \cos^2 \alpha$$

$$\cos^n x + \sin^n x = 0 \Rightarrow 1 - \sin^n x + \sin^n x = 0$$

$$u = rkn \pm \frac{n}{r} \left. \begin{array}{l} \text{---} \pm \frac{n}{r} \\ \text{---} -rn \pm \frac{n}{r} \end{array} \right\} \sum u = \frac{n}{r} - \frac{n}{r} - rn + \frac{n}{r} - rn - \frac{n}{r} = -4n$$

18-1

$$\lim_{x \rightarrow 2^+} \frac{x-2}{x^2 - [x^2]} = \frac{x-2}{x^2 - 4} = \frac{1}{x+2} = \frac{1}{4} \quad \text{حد راست}$$

$$\lim_{x \rightarrow 2^-} \frac{x-2}{x^2 - [x^2]} = \frac{x-2}{x^2 - 4} = 0 \quad \text{حد چپ}$$

$$\left. \begin{array}{l} \frac{1}{4} + 0 = \frac{1}{4} \end{array} \right\}$$

گزینه ۱

۱۶-۲

$$f-g = \frac{x}{x^2+2x-3} - \frac{1}{x-1} = \frac{x}{(x-1)(x+3)} - \frac{x+3}{(x-1)(x+3)} = \frac{1-x}{(x-1)(x+3)}$$

$$= \frac{-1}{x+3}$$

چون درجهی منفرج از صورت بیشتر است.

مخالف قائم $x = -3$ مخالف افقی $y = 0$ مختصات $(-3, 0)$

۱۷-۳

$$\left. \begin{aligned} \lim_{n \rightarrow n^+} f(n) &= (1-a)(n) + (2a^2-1)(-n-1) \\ \lim_{n \rightarrow n^-} f(n) &= (1-a)(n-1) + (2a^2-1)(-n) \end{aligned} \right\} \Rightarrow \begin{aligned} &n(-2a^2-a+2) + 1-2a^2 \\ &= n(-2a^2-a+2) + a-1 \end{aligned}$$

$$\Rightarrow 1-2a^2 = a-1 \Rightarrow a = \frac{2}{3}, -1$$

مختصات $\frac{a}{b} = 2$

$$b = \frac{1}{2}$$

مختصات $b = 0$

18-1

$$\left(\frac{f}{g}\right)' = \frac{f'g - g'f}{g^2} \Rightarrow f'g - g'f = \left(\frac{f}{g}\right)' g^2$$

$$\frac{f}{g} = \wedge \rightarrow \left(\frac{f}{g}\right)' = 0 \quad \text{or } g^2 = 0$$

(نشی ۱)

19-۲

$$\frac{ax+b}{cx+d} \rightarrow ad-bc < 0 \rightarrow \text{تابع نزولی است}$$

$$\Rightarrow a=m \quad b=r \quad \Rightarrow m^2 - m - 2 < 0$$

$$c=1 \quad d=m-1$$

$$a+c=b \quad \begin{matrix} m=-1 \\ m=2 \end{matrix} \rightarrow -1 < m < 2$$

$$m=0, 1$$

(نشی ۲)

۲۰-۴

$$\left. \begin{array}{l} ab + c = \frac{1}{a} \quad \text{سویسی} \\ b = -\frac{1}{a^2} \quad \text{مشتق پذیری} \end{array} \right\} a\left(-\frac{1}{a^2}\right) + c = \frac{1}{a} \Rightarrow c = \frac{2}{a}$$

$$ac = 2$$

نمی‌شود

۲۱-۳

قط مماس در نقطه‌ی عطف نمودار از منحنی عبور کرده است.

$$y'' = 4x + 2a \Rightarrow y''(-1) = -4 + 2a = 0$$

$$a = 2$$

$$y(-1) = -4 \Rightarrow -1 + a - b - 1 = -4 \quad a - b = -2$$

$$b = 2 \rightarrow \frac{2}{2} = 1$$

نمی‌شود

@HVfali