

(B) طاقتي - هم دفتر

$$y = a(x-h)^2 + k \rightarrow y = a(x+1)^2 + 9 \quad x=0, y=1 \quad 1 = a(1+1)^2 + 9 \rightarrow 1-9 = 14a$$

$$y = -2(x+1)^2 + 9$$

$$\frac{-14 = 14a}{a = -2}$$

$$y = -2(x^2+1+2x)+9 \rightarrow -2x^2-2+4x+9 = -2x^2+4x+7$$

سوال ۲

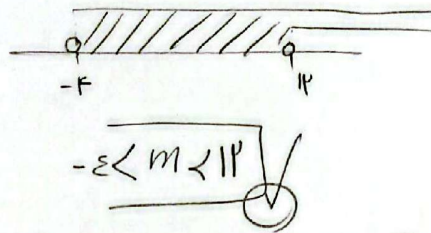
$$\Delta > 0 \rightarrow \frac{b^2 - 4ac}{4a^2} > 0$$

$$2x^2 + mx + m + 4 = 0 \rightarrow \Delta = m^2 - 4(m+4)(2) = m^2 - 8m - 32 > 0$$

$$\Delta = m^2 - 8m - 32 > 0$$

$$(m-12)(m+8) > 0$$

$$m > 12 \quad m < -8$$



$$-8 < m < 12$$

۱, ۵

$$\Delta > 0 \rightarrow \frac{b^2 - 4ac}{4a^2} > 0$$

$$\Delta = b^2 - 4ac = (2m-1)^2 - 4 \times 1 \times (2-m) = 4m^2 - 4m + 1 - 8 + 4m = 4m^2 - 4m - 7 > 0$$

$$4m^2 - 4m - 7 > 0$$

$$x_1 + x_2 = \frac{-b}{a} = \frac{-(2m-1)}{4}$$

$$x_1 x_2 = \frac{c}{a} = \frac{2-m}{4}$$

$$(2m-1)(m-2) = 9$$

$$2m(m-2) - 1(m-2) = 9$$

$$2m^2 - 4m - m + 2 = 9 \rightarrow 2m^2 - 5m - 7 = 0$$

$$m = -1 \rightarrow \Delta = 4(-1)^2 - 4(-1)(-7) = 4 - 28 = -24 < 0$$

$$4m^2 - 4m - 7 > 0$$

$$4m^2 - 4m - 7 > 0$$

$$m_1 = \frac{5 + \sqrt{41}}{4}, m_2 = \frac{5 - \sqrt{41}}{4}$$

سوال ۴

$$x_1 + x_2 = (x_1^w + x_2^w) + \left(\frac{1}{x_1^r} + \frac{1}{x_2^r} \right) \rightarrow \frac{x_1 + x_2}{x_1 x_2} = \frac{-1}{\varepsilon} \Rightarrow 1^w - \frac{1}{\varepsilon} = \frac{\omega^2 - 1}{\varepsilon} = \frac{\omega}{\varepsilon}$$

$$\left(x_1^w + \frac{1}{x_1^r} \right) \left(x_2^w + \frac{1}{x_2^r} \right) \Rightarrow x_1^w x_2^w = (\varepsilon)^w = -4\varepsilon$$

$$x_1^w \times \frac{1}{x_1^r} = x_1^r$$

$$x_1^r \times \frac{1}{x_1^w} = x_1^w \Rightarrow -4\varepsilon + \left(\frac{x_1^r + x_2^r}{x_1^r x_2^r} \right) + \frac{1}{x_1 x_2} = 1 - 2(-\varepsilon) = 1 + 2\varepsilon = 9$$

$$x_1 x_2 = \frac{-2\varepsilon}{\varepsilon} = -2$$

$$y^2 - (x_1 + x_2)y + (x_1 x_2) = y^2 - \frac{\omega}{\varepsilon}y - \frac{2\varepsilon}{\varepsilon}$$

$$\left(\frac{\sqrt[r]{x^r}}{t^r} + 1\right)(\sqrt[r]{x^r} - 1) = r\sqrt[r]{x} \Rightarrow \left(t^r + \frac{1}{t^r} + 1\right)(t^r - 1) = r t$$

سوال 5

$$\left(\frac{t^r + t^{-r} + 1}{t^r}\right) \times (t^r - 1) = r t \rightarrow (t^r + t^{-r} + 1)(t^r - 1) = r t^r \rightarrow (t^r + t^{-r} + 1)(t^r - 1)(t^{-1})(t+1)$$

$$(t^r + t^{-r} + 1)(t^r - 1) = t^q - 1 \rightarrow t^q - 1 = r t^r \rightarrow t^q - 1 - r t^r = 0 \xrightarrow{t^r = m} m^r - 1 - r m = 0$$

$$m = 1 \pm \sqrt{r}$$

$$\begin{cases} x_1 = 1 + \sqrt{r} \\ x_2 = 1 - \sqrt{r} \end{cases} \Rightarrow x_1 + x_2 = 1 + \sqrt{r} + 1 - \sqrt{r} = 2$$



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سوال 4

$$r x_1^r - a x_1 + r = 0$$

$$r x_2 = r x_1 \rightarrow x_1 + x_2 = x_1 + r x_1 = r x_1 = \frac{a}{r}$$

$$x_1 = \frac{a}{1+r}$$

$$\left. \begin{aligned} x_1 \times x_2 &= x_1 \times r x_1 = r x_1^2 = \frac{\varepsilon}{r} \\ r x_1^r &= \frac{\varepsilon}{r} \rightarrow x_1^r = \frac{\varepsilon}{r} \Rightarrow x_1^r = \frac{r}{r} \end{aligned} \right\}$$

$$\frac{r}{1+r} = \frac{a}{1+r} \rightarrow a = 1$$

$$\frac{-r}{r} = \frac{a}{1+r} \rightarrow a = -1$$

$$\Rightarrow 1 - (-1) = 2$$

2

سوال 7

$$y = a x^r + (r + r a) x \rightarrow x = 0$$

(0,0) is a root

$$\rightarrow x = \frac{-r + r a}{a}$$

$$\Rightarrow -(r + r a) \geq 0$$

$$r + r a \leq 0 \rightarrow a \leq \frac{-r}{r}$$

1

سوال 8

$$y = x^r + a x - r \Rightarrow \frac{-b}{r a} = \frac{-a}{r} \cup \frac{1}{r}$$

$$y = -x^r - r x + b \Rightarrow \frac{-b}{r a} = \frac{-(-r)}{r(-1)} = -1 \cup \frac{1}{r}$$

$$\left. \begin{aligned} \frac{-a}{r} &= -1 \rightarrow -a = -r \\ a &= r \end{aligned} \right\}$$

$$1 = x_1^r + r x_1 - r \rightarrow x_1^r + r x_1 - r = 0 \rightarrow x_1 = 1$$

$$x_1 = -r$$

$$r - r(1-b) \geq 0 \Rightarrow r - r + r b \geq 0 \rightarrow r b \geq 0$$

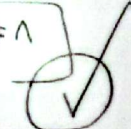
$$b \geq 0 \rightarrow 1 = -1 - r + b \rightarrow b = 2$$

$$\rightarrow 1 = -r + r b$$

$$\rightarrow b = 2$$

2

Galaxy A05s



$$\left. \begin{aligned} r_1 r_2 - a r_1 + b &= 0 \\ r_1 r_2 + a r_1 - 4 &= 0 \end{aligned} \right\} \begin{aligned} r_1 &= s_1 + \omega \\ r_2 &= s_2 + \omega \end{aligned}$$

سوال 9

$$\begin{aligned} \text{J, I, I, I, I} &\Rightarrow r_1 + r_2 = \frac{a}{r} \Rightarrow (s_1 + s_2) + 1 = r_1 + r_2 \\ \text{I, I, I, I, I} &\Rightarrow s_1 + s_2 = \frac{-4}{r} = -\frac{4}{r} \Rightarrow \frac{a}{r} + \frac{a}{r} = 1 \end{aligned}$$

$$r_1 r_2 = (s_1 + \omega)(s_2 + \omega) = s_1 s_2 + \omega(s_1 + s_2) + \omega^2$$

$$\frac{b}{r} = -\frac{4}{r} + \omega(s_1 + s_2) + \omega^2 \xrightarrow{a=1} \omega(s_1 + s_2) + \omega^2 = -\frac{4}{r} \Rightarrow \frac{b}{r} = -\frac{4}{r} - \omega^2 = -\frac{4}{r}$$

$$\left[\frac{a \ b}{\varepsilon} \right] = \left[\frac{1 \ -4}{\varepsilon} \right] = \left[\frac{-4}{\varepsilon} \right] = \left[-\frac{4}{\varepsilon} \right] = \left[-\frac{4}{\varepsilon} \right]$$

$$\frac{b}{r} = -\frac{4}{r} - \omega^2 = -\frac{4}{r}$$

$$x^2 + 4x + m = 0$$

$$x^2 + 2x - 13m = 0$$

$$x^2 + 4x + m - (x^2 + 2x - 13m) = 0 \Rightarrow 2x + 14m = 0 \Rightarrow x = -7m$$

$$x^2 + 4x - x = 0 \Rightarrow x^2 + 3x = 0 \Rightarrow x(x + 3) = 0 \Rightarrow x = 0 \text{ or } x = -3$$

$$x^2 + 4x + \omega = 0 \Rightarrow (x + 1)(x + \omega) = 0$$

$$x = -1, x = -\omega$$

$$x^2 + 2x - \omega = 0 \Rightarrow (x + \omega)(x - 1) = 0$$

$$x = -\omega, x = 1$$

$$\Rightarrow |1 - (-1)| = |2| = 2$$

$$\text{است.} \rightarrow -\frac{b}{2a} = -1 \rightarrow b = 2a$$

$$f(-1) = 9 \rightarrow a - b + c = 9 \rightarrow a - 2a + c = 9 \rightarrow c = 9 + a$$

$$f(3) = 1 \rightarrow 9a + 3b + c = 1 \rightarrow 9a + 4a + 9 + a = 1 \rightarrow 14a = -8 \rightarrow a = -\frac{1}{2}$$

$$\rightarrow b = -1$$

$$\rightarrow c = 8.5$$

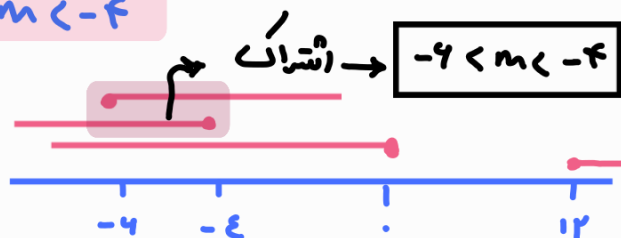
$$\rightarrow y = -\frac{1}{2}x^2 - x + 8.5$$

$$\Delta > 0 \rightarrow m^2 - f(2)(m+4) > 0 \rightarrow m^2 - 8m - 48 > 0$$

$$(m-12)(m+4) > 0 \rightarrow m > 12 \text{ } \cup \text{ } m < -4$$

$$S > 0 \rightarrow -\frac{m}{2} > 0 \rightarrow m < 0$$

$$D > 0 \rightarrow \frac{m+4}{2} > 0 \rightarrow m > -4$$



$$1) \rightarrow a > 0$$

$$2) \rightarrow S > 0 \rightarrow \frac{-2a-3}{a} > 0 \rightarrow \frac{-1.5}{1+1} = -1.5 < a < 0$$

۱. $a > 0$ سهم منبسط دارد.

۲. سهم منبسط و یک ریشه مثبت و یک ریشه منفی داشته باشد.

اشتراک این دو بازه تهی است پس غیرممکن است از ناحیه سوم عبور کنند!