

نام و نام خانوادگی: ..... ۱۵/۱۵ ..... پاسخنامه تشریحی تکلیف شماره ۳، کلاس دوم

۱)  $\frac{-b}{2a} = -1 \Rightarrow b = 2a$ ,  $\frac{-\Delta}{4a} = \frac{-4a^2 + 4ac}{4a} = 9 \Rightarrow c - a = 9 \Rightarrow c = 9 + a$

$\begin{cases} 9a + 3b + c = 1 \\ a - b + c = 9 \end{cases} \xrightarrow{b=2a} \begin{cases} 9a + 6a + c = 1 \\ a - 2a + c = 9 \end{cases} \Rightarrow \begin{cases} 15a + c = 1 \\ -a + c = 9 \end{cases} \xrightarrow{+} 14a = -8 \Rightarrow a = -\frac{8}{14} = -\frac{4}{7}, b = -\frac{8}{7}, c = \frac{67}{7}$

$\Rightarrow y = -\frac{1}{7}x^2 - \frac{8}{7}x + \frac{67}{7}$

عبارت سه تایی

$\frac{c}{a} > 0 \Rightarrow \frac{m+6}{2} > 0 \Rightarrow m+6 > 0 \Rightarrow m > -6$ ,  $\frac{-b}{a} > 0 \Rightarrow \frac{-m}{2} > 0 \Rightarrow m < 0$

$\Delta > 0 \Rightarrow b^2 - 4ac > 0 \Rightarrow m^2 - 6m - 48 > 0 \Rightarrow (m-12)(m+4) > 0$

$\Rightarrow m < -4 \vee m > 12$

$\Rightarrow -6 < m < -4$  ✓

$\frac{-b}{a} = \frac{a}{c} \Rightarrow \frac{-2m+1}{3} = \frac{3}{2-m} \Rightarrow 2m^2 - 5m - 7 = 0$

$\begin{cases} m = -1 \times \\ m = \frac{7}{2} \checkmark \end{cases}$

$\Delta > 0 \Rightarrow (2m-1)^2 - 12(2-m) > 0 \Rightarrow 4m^2 + 8m - 23 > 0$

$4 - 8 - 23 > 0 \Rightarrow -27 > 0 \times$

$49 + 28 - 23 > 0 \Rightarrow 54 > 0 \checkmark$

$m = \frac{7}{2}$

$\frac{x_1^3 x_2 + 1}{x_2}, \frac{x_2^3 x_1 + 1}{x_1} \Rightarrow \frac{-4x_1^2 + 1}{x_2}, \frac{-4x_2^2 + 1}{x_1}$

$S = \frac{-4x_1^2 + 1}{x_2} + \frac{-4x_2^2 + 1}{x_1} = \frac{-4(x_1^3 x_2 + 1) + (-4x_2^3 x_1 + 1)}{x_1 x_2} = \frac{-4(13) + 1}{-4} = \frac{51}{4}$

$P = \frac{(-4x_1^2 + 1)(-4x_2^2 + 1)}{x_1 x_2 - 4} = \frac{1 + 16x_1^2 x_2^2 - 4(x_1^2 + x_2^2)}{-4} = \frac{257 - 4(9)}{-4} = -\frac{221}{4}$

$\frac{1}{1/10}$

$\frac{x^2 + \sqrt[3]{x^2}}{\sqrt[3]{x^2}} + \sqrt[3]{x^2} - 1 - \frac{\sqrt[3]{x^4} + 1}{\sqrt[3]{x^2}} = 2\sqrt[3]{x} \Rightarrow \frac{x^2}{\sqrt[3]{x^2}} + 1 + \sqrt[3]{x^2} - \frac{x\sqrt[3]{x} + 1}{\sqrt[3]{x^2}} = 2\sqrt[3]{x}$

$\Rightarrow \frac{x^2 + x\sqrt[3]{x} + 1}{\sqrt[3]{x^2}} = 2\sqrt[3]{x} \Rightarrow x^2 + x\sqrt[3]{x} + 1 = 2x \Rightarrow x^2 + (\sqrt[3]{x} - 2)x + 1$

$\Rightarrow S = \frac{-b}{a} = 2 - \sqrt[3]{x}$

$(\sqrt[3]{a^r} + \frac{1}{\sqrt[3]{a^r}} + 1)(\sqrt[3]{a^r} - 1) = r\sqrt[3]{a} \rightarrow \frac{(\sqrt[3]{a^r} + \sqrt[3]{a^r} + 1)(\sqrt[3]{a^r} - 1)}{\sqrt[3]{a^r}} = r\sqrt[3]{a}$

$\rightarrow 2^r - 1 = r2 \rightarrow 2^r - 2a - 1 = 0 \rightarrow 2r + a_1 - \frac{-b}{a} = r$

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |
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| $x_1 = 3x_2$ $3x_1^2 - ax_1 + 4 = 0$<br>$S = -\frac{b}{a} = 4x_2 \Rightarrow \frac{a}{3} = 4x_2 \Rightarrow a = 12x_2$<br>$P = \frac{c}{a} = 3x_2^2 \Rightarrow \frac{4}{3} = 3x_2^2 \Rightarrow 9x_2^2 = 4 \Rightarrow x_2^2 = \frac{4}{9} \Rightarrow x_2 = \pm \frac{2}{3}$<br>$\Rightarrow a = 12x_2 \Rightarrow \begin{cases} a = 8 \\ a = -8 \end{cases} \rightarrow 8 - (-8) = 16 \checkmark$<br><p style="text-align: center;">a توك ف اوك</p>                                                                       | 6  |
| <p>①, ②</p> $\Delta > 0 \Rightarrow (3+2a)^2 - 4 \cdot 3 \cdot 4 > 0$<br>$\sqrt{a} > 0 \rightarrow \text{موجب}$<br>$-\frac{b}{a} > 0 \Rightarrow \frac{-3-2a}{a} > 0 \Rightarrow -3-2a > 0 \Rightarrow 2a < -3 \Rightarrow a < -\frac{3}{2}$<br><p style="text-align: center;">a توك ف اوك</p> <p style="text-align: right;">منه مالت كالت</p>                                                                                                                                                                               | 7  |
| $= \text{نقطة تقاطع} \Rightarrow \frac{-b_1}{2a_1} = \frac{-b_2}{2a_2} \Rightarrow \frac{-a}{2} = \frac{2}{-2} \Rightarrow a = 2$<br>$y = x^2 + px - r$<br>$y = 1 \rightarrow x^2 + px - r = 0 \rightarrow (x+r)(x-1) = 0$<br>$\rightarrow 8 = 4 - 4(-1)(b) \Rightarrow 12 = 4 + 4b \Rightarrow b = 2$<br>$\Rightarrow ab = 2 \times 2 = 4$<br>$\begin{cases} a = 1 \rightarrow A(1, 1) \\ a = -r \rightarrow B(-r, 1) \end{cases} \rightarrow 1 = -4 + 4 + b \rightarrow b = 1$<br><p style="text-align: right;">ab = 1</p> | 8  |
| $\frac{a}{2} + \frac{a}{2a} = 1 \Rightarrow \frac{a}{2} + \frac{1}{2} = 1 \Rightarrow a = 1$<br>$\frac{-6}{2a} = \frac{b}{2} \Rightarrow b = -6$<br>$\Rightarrow \frac{ab}{4} = \frac{-6}{4} \Rightarrow \left[\frac{ab}{4}\right] = -2 \checkmark$                                                                                                                                                                                                                                                                          | 9  |
| $S_A = P + Z$<br>$S_B = K + P \Rightarrow S_A - S_B = Z - K$<br>$S_A = -6, S_B = -2 \Rightarrow Z - K = -2 + 6 = 4 \checkmark$<br><p style="text-align: right;">2, P من 5b <math>x^2 + 6x + m</math><br/> K, P من 5a <math>x^2 + 2x - 3m</math></p>                                                                                                                                                                                                                                                                          | 10 |