(۱۹)

نام و نام خانوادگی ......سبا منفعتی...... پاسخنامه تشریحی تکلیف شماره ....۱۴.... کلاس یازدهم دختران گروه B

۱	(۲)	$y = -x^2 + bx + 3$ $\frac{-\Delta}{4a} = 7$ $\frac{-(b^2-4ac)}{4a} = 7 \Rightarrow \frac{-(b^2+12)}{-4} = 7$ $b^2+12 = 28 \to b^2 = 16 \to b = \pm 4$
۲	(۲)	الف) $f(x) = x^4 + 2x^2 + 3$ $x^2 = t$ $t^2 + 2t + 3 = 0$ صفرهای تابع وجود ندارد $\Delta < 0 \to$ ریشه ندارد $4-12 < 0$ ب) $f(x) = (4-x^2)^2 - 2(4-x^2) - 15$ $4 - x^2 = t$ $t^2 - 2t - 15 = 0 \quad (t-5)(t+3) = 0$ $4-x^2 = 5 \to -1 = x^2$ غ ق ق $4 - x^2 = -3 \to 7 = x^2 \Rightarrow x = \pm\sqrt{7}$
۳	(۱٫۷۵)	$4x^2 - 16x + m = 0 \quad \alpha - \beta = 2$ $\frac{\sqrt{\Delta}}{\|a\|} = 2 \Rightarrow \frac{\sqrt{256-16m}}{4} = 2 \Rightarrow (\sqrt{256-16m} = 8)^2$ $256 - 16m = 64 \to 192 = 16m \Rightarrow \boxed{m = 12}$ $4x^2 - 16x + 12 = 0$ $\alpha, \beta = \frac{16 \pm \sqrt{256-192}}{8} \to x_1 = \frac{24}{8} = 3, \ x_2 = \frac{8}{8} = 1$ $4x^2 - 16x + 12 = 0 \quad \Delta > 0$ ✓
۴	(۱٫۷۵)	۴. m $3x^2 - 6x + m - 1 = 0 \quad 2\alpha - \beta = 4$ $-\frac{b}{a} = \alpha + \beta = \frac{6}{3} = 2$ $\alpha + \beta = 2$, $2\alpha - \beta = 4$ ⟹ $3\alpha = 6$ $\alpha = 2 \quad \beta = 0$ $\frac{c}{a} = \frac{-m+1}{3} = \alpha\beta = 0$ $-m + 1 = 0$ $\boxed{m = 1}$ $3x^2 - 6x = 0 \quad \Delta > 0$ ✓
۵	(۲)	۵. m ریشه متفاوت $-mx^2 + 4x + m^2 - 2 = 0$ ریشه متمایز ← $\Delta > 0$ $\alpha\beta = 1 \quad \frac{c}{a} = \alpha\beta, \ -\frac{b}{a} = \alpha + \beta$ $m = -2 \Rightarrow b^2 - 4ac = 16 - 16 = 0$ غ ق ق $\frac{m^2-2}{-m} = 1 \Rightarrow m^2 + m - 2 = 0$ $\frac{-1 \pm \sqrt{1+8}}{2} \Rightarrow m_1 = -2, \ m_2 = 1$ $\boxed{m = 1} \Rightarrow b^2 - 4ac = 12 > 0$ ✓

$x^2 - mx + 3 = 0$ $\alpha\beta^2 = 4$

$\alpha + \beta = m$ $\alpha\beta = 3 \to \alpha = \frac{3}{\beta}$

$4 = \beta^2 \times \frac{3}{\beta} \Rightarrow 4 = 3\beta \Rightarrow \beta = \frac{4}{3}$ ۶

$\alpha = \frac{3}{\frac{4}{3}} = \frac{9}{4}$ $m = \frac{9}{4} + \frac{4}{3} = \frac{27+16}{12} = \boxed{\frac{43}{12} = m}$ ۱٫۷۵

$x^2 - \frac{43}{12}x + 3 \to \Delta > 0$ ✓

$x^2 - 4x + m = 0$ $m = ?$ $\alpha = 3\beta$

$\alpha + \beta = 4$ $\alpha . \beta = m$

$3\beta + \beta = 4 \to \beta = 1 \to 4 - 1 = \alpha = 3$ ۱٫۷۵ ۷

$\alpha . \beta = m \Rightarrow \textcircled{3}$ $x^2 - 4x + 3 \to \Delta > 0$ ✓

$x^2 - 7x + 2 = 0$ $\alpha^3 + \frac{8}{\alpha^3} = ?$

$\alpha\beta = 2$ $\alpha + \beta = 7$

$\frac{\beta}{2} = \frac{1}{\alpha} \Rightarrow \frac{\beta^3}{8} \Rightarrow \beta^3 = \frac{(\alpha\beta)^3}{\alpha^3} = \frac{8}{\alpha^3}$ ۲ ۸

$\beta^3 + \alpha^3 = \frac{8}{\alpha^3} + \alpha^3 \xrightarrow[\text{مکعب ها}]{\text{ع.ع}} \alpha^3 + \beta^3 = 7^3 - 3 \times 2 \times 7 = \boxed{301}$

$(\alpha+\beta)(\alpha^2 + \beta^2 - \alpha\beta)$

$h(t) = -10t^2 + 50t$ $h_{max} = ?$ $t = ?$

$-10t^2 + 50t = 0 \Rightarrow t = 0$ $t = 5$

(شروع) (برخورد)

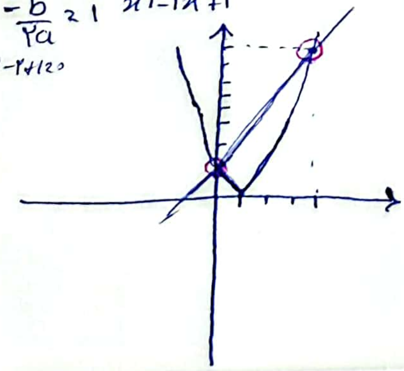
ارتفاع max

$\frac{5+0}{2} = 2/5$ ۲ ۹

$-10(2/5)^2 + 50(2/5) = 62/5\,m = h_{max}$

الف) $(x-1)^2 = 2x + 1$ $\Rightarrow x^2 - 4x = x(x-4)$, ۰ ، ۴

$x^2 - 2x + 1$ $-\frac{b}{2a} = 1$ $1 - 2 + 1 = 0$

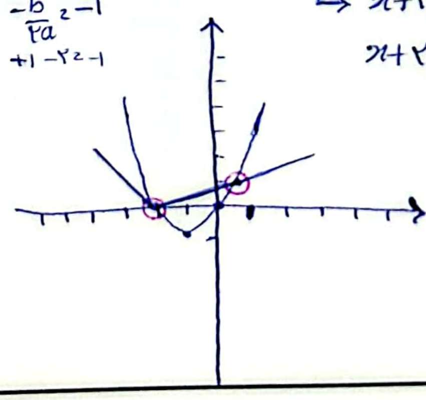


ب) $x^2 + 2x = |x+2|$

$-\frac{b}{2a} = -1$ $+1 - 2 = -1$

$\hookrightarrow x + 2 \geq 0 \to x \geq -2$ (۱)

$x + 2 < 0 \to x < -2$ (۲)



$x = -2$ و $x = 1$ ۲ ۱۰