نام و نام خانوادگی: فاطمه زهرا جلال زاده — کلاس دهم رشته A — تکلیف شماره: ۲۴

Year Month Date ( )

Subject

۱) الف) $y = 2x^2 - 4x + 1$

$\frac{-b}{2a} = \frac{4}{4} = 1$ ← محل

$2 - 4 + 1 = -1$ ← عرض رأس (min y)

ب) $y = -2x^2 + 3x - 5$

$\frac{-b}{2a} = \frac{-3}{-4} = \frac{3}{4}$ ← محل

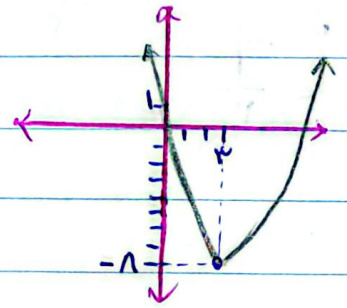
$-2\left(\frac{9}{16}\right) + 3\left(\frac{3}{4}\right) - 5 = \frac{-9}{8} + \frac{18}{8} - \frac{40}{8}$

$= \frac{-31}{8}$ ← عرض رأس (max y)

۲) الف) $y = x^2 - 6x + 1$

$\frac{-b}{2a} = \frac{6}{2} = 3$

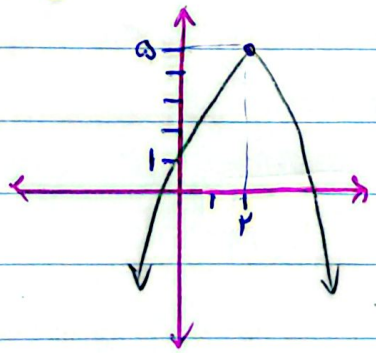
$9 - 18 + 1 = -8$



ب) $y = -x^2 + 4x + 1$

$\frac{-b}{2a} = \frac{-4}{-2} = 2$

$-4 + 8 + 1 = 5$



۳)

$4x^3 + kx^2 - 6x - 2 = 0$ $\quad \alpha + \beta = 1 \quad \alpha\beta = -2$

$(x - \alpha)(x - \beta) = x^2 - (\alpha + \beta)x + \alpha\beta \rightarrow x^2 - x - 2$

$(x^2 - x - 2)(4x + A) = 4x^3 + kx^2 - 6x - 2$

$4x^3 + Ax^2 - 4x^2 - Ax - 8x - 2A = 4x^3 + x^2(A - 4) - x(A + 8) - 2A$

$K = 1 - 4 \quad DIS$

$K = -3 \quad A = 1$

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۴) $x^2 - 3mx + m = 0$ $\quad \sqrt{\beta} + \sqrt{\alpha} = 1$

$\left(\sqrt{\beta} + \sqrt{\alpha}\right)^2 = \beta + \alpha + 2\sqrt{\alpha\beta} = 1 \rightsquigarrow 3m + 2\sqrt{m} - 1 = 0$

$\sqrt{m} = t \rightsquigarrow 3t^2 + 2t - 1 = 0$

$t^2 + 2t - 3 = 0$

$(t+3)(t-1) = 0$

$t = -3$ ↓ $\quad t = 1$ ↓

$\sqrt{m} = -3$ غ ق ق $\quad \sqrt{m} = 1 \rightsquigarrow \boxed{m = 1}$ ق ق

$2x^2 - mx - m = 0 \rightarrow \alpha\beta = \frac{c}{a} = \frac{-m}{2} = \boxed{\frac{-1}{2}}$

۵)

$y = 2x^2 - (m+2)x + m \rightsquigarrow 2 - (m+2) + m = 0$

بیضی $\rightarrow 1 \, , \frac{m}{2}$

$m\left(\frac{m-2}{2}\right) = \frac{3}{2} \times 2 \longrightarrow m^2 - 2m - 3 = 0$

$(m-3)(m+1) = 0$

$m = 3 \, , -1$

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

$\qquad\qquad\quad \searrow y = x^2 - 3x + 1 \rightarrow \frac{3}{2}$

۶)

$y = ax + 3x + a \qquad a > 0$

$\frac{-\Delta}{4a} = \frac{4a^2 - 9}{4a} = \frac{7}{8} \rightsquigarrow 8a^2 - 18 = 7a$

$8a^2 - 7a - 18 = 0$

$a^2 - 7a - 144 = 0$ PARDIS

$(a - 16)(a + 9) = 0$

یک ستاره ⇐ $a = \boxed{16} \, , \boxed{-9}$ → غ ق

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(۷ $x^2-(a+1)x+a=0 \rightarrow 1-(a+1)+a=0$ ریشه 1

$a-1=2 \rightsquigarrow a=3$ ← a

$x^2-(2a+1)x+b=0 \rightarrow x^2-10x+b=0$

$\rightarrow \frac{\sqrt{\Delta}}{|a|}=\frac{\sqrt{100-4b}}{1}=2$

$100-4b-4=0$

$-4b+96=0$

$-4b=-96$

$\boxed{b=24}$

$(x-4)(x-6)=0 \Leftarrow$

$x=4 \quad x=6$

$24-3=21$

(۸ $y=-ax^2+ax+2 \rightsquigarrow \frac{-a}{-2a}=\frac{1}{2}$ راس $\left|\begin{array}{l}\frac{1}{2} \\ \frac{a}{4}+2\end{array}\right.$

$y=2bx^2-bx-1 \rightarrow \frac{b}{4a}=\frac{1}{4}$ راس $\left|\begin{array}{l}\frac{1}{4} \\ \frac{-b}{8}-1\end{array}\right.$

$(\frac{1}{2})^2\times 2b-b(\frac{1}{2})-1=\frac{a}{2}+2 \quad \frac{b}{2}-\frac{b}{2}-1=\frac{a}{4}+2$

$\Rightarrow a=-12$

$12(\frac{1}{4})^2-12(\frac{1}{4})+2=\frac{-b}{8}-1 \Rightarrow \boxed{b=-4}$

$b-a=-4-(-12)=8$

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$$\frac{\beta}{2\alpha} = \alpha\beta \rightarrow \alpha = \pm\frac{1}{5}$$

$$\frac{-4}{2\alpha} = \alpha+\beta \rightarrow 2\alpha^2 + 2\alpha\beta = -4$$

$$\alpha\beta = \frac{-1}{5} \rightarrow \beta = \pm 1$$

$\alpha = \frac{1}{5} \rightsquigarrow \beta = -1$ قبول

$\alpha = -\frac{1}{5} \rightsquigarrow \beta = 1$ قبول

$y = -5x^2 + 4x + 1 \rightarrow$ ext $\left|\begin{matrix}\frac{2}{5}\\ \frac{9}{5}\end{matrix}\right.$

گزینه اول

(10

$$x^2 - (a^2+b^2-12)x + a + b - 1 = 0$$

$$a+b = a^2+b^2-12$$

$$ab = a+b-1$$

$$ab = a^2+b^2-12$$

$$ab + 12 = (a+b)^2 - 2ab$$

$$(a+b)^2 - 3ab - 12 = 0$$

$$(a+b)^2 - 3(a+b) - 10 = 0$$

$$(a+b-5)(a+b+2) = 0$$

$$\begin{cases} a+b-5=0 \\ \boxed{a+b=5} \end{cases}$$ قبول

$$\begin{cases} a+b+2=0 \\ \boxed{a+b=-2} \end{cases}$$ قبول

PARDIS