[illegible] ۹/۵

1) ۲

$x^2-5x+2=0 \quad \frac{-b}{a}=5=\alpha+\beta \quad \frac{c}{a}=\alpha\beta=2$

$(\alpha+\beta)^2=\alpha^2+\beta^2+\underbrace{2\alpha\beta}_{4}=25 \to \alpha^2+\beta^2=21 \to \beta^4=(21-\alpha^2)^2 \to$

$\frac{4\alpha+\beta^5}{5\beta^2} \Rightarrow \frac{2\alpha^2\beta+\beta^5}{\alpha\beta^2+\beta^3} \to \frac{\beta(2\alpha^2+\beta^4)}{\beta(\alpha\beta+\beta^2)} = \frac{\beta(\alpha^3+\beta^3)}{5\beta} \to \boxed{19}$

2) ۰

$\frac{-b}{2a}=\frac{3-1.5}{2}=0.75 \to \boxed{\frac{3}{4}}$

$(\alpha+\beta)(\alpha^2+\beta^2-\alpha\beta)=\alpha^3+\beta^3$

$\frac{S}{5} \quad 19$

3) ۵

$k^2=\frac{31,\dots}{2}\simeq 15$

$x^2+2kx+5=0 \quad \left[\frac{k^2}{2}\right]=? \quad -2k=\alpha+\beta$

$5=\alpha\beta$

$\frac{4}{3}k=\alpha-\beta$

$-2k=\alpha+\beta \to -2k=\frac{-2}{3}k+\beta \to \beta=\frac{-4}{3}k$

$\frac{-2}{3}k=\alpha$

$\frac{-4}{3}k\times\frac{-2}{3}k=5 \to \frac{8}{9}k=5 \to k=\frac{45}{8}\simeq 5,\dots$

4) ۰/۵

$\frac{-\Delta}{4a}=1 \quad B=(-5,y) \quad A=(3,y) \Longrightarrow y=ax^2+bx+c$

$y=ax^2+bx+c$

$-4a=\Delta$

$25a-5b+c=9a+3b+c \to 16a=8b$ ✓

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

$-4a=b^2-4ac$

$4a^2-4ac=-4a \to a-c=-1 \to a-1=c$

$\alpha^2+\beta^2=5 \to (\alpha+\beta)^2=(2)^2 \to \alpha^2+\beta^2+2\alpha\beta=4 \to 2\alpha\beta=-1$

$\alpha\beta=\frac{-1}{2}$

$\frac{-1}{2}=\frac{c}{c+1}=-c-1=2c$

$3c=-1 \to \boxed{c=\frac{-1}{3}}$

$(y-1)=(x-(-1))^2(a)$

$y=ax^2+2ax+a+1$

$\alpha^2+\beta^2=5$

$S^2-2P=5$

$(-2)^2-2\left(\frac{a+1}{a}\right)=5$

$4-\left(\frac{2a+2}{a}\right)=5$

$a=\frac{-2}{3} \to c=a+1=\frac{1}{3}$

۵) ۵

$-x^2+5x+m=0$ $+5=\alpha+\beta$ $-m=\alpha\beta$

$\alpha<\frac{9}{2}$, $\beta<\frac{9}{2}$ $\Big\}$ $\alpha\beta<\frac{81}{4}$

ریشه‌ها α و β مثبت

$+\beta$ و α ریشه

$m>\frac{81}{4}$

۶) ۰٫۷۵

$y=mx^2-12x+5m-1 \rightarrow \frac{-\Delta}{4a}=2 \rightarrow -\Delta=8a$

$-(144-4m(5m-1))=8a$

$144-20m+4m=-8a \rightarrow 144-16m=8a \rightarrow 18-2m=m$

$m=6$

$\frac{-b}{2a}=\frac{12}{18-2m} \longrightarrow x=\frac{12}{36-24}$ $y=2$ $x=1$

$2=\frac{144m}{1296}$

۷) ۲

$x^2+2(a+1)x+2a-1=0$ $a^2=\frac{\alpha\beta}{2a-1} \longrightarrow a^2-2a+1=0$

$2a-1=\alpha\beta$ $a=1$

۸) ۲

$x^4-7x^2-5=0$ ($x^2=t$)

$t^2-7t-5=0 \rightarrow 49+20=69 \rightarrow \frac{7+\sqrt{69}}{2}=x^2$

$x=\pm\sqrt{\frac{7+\sqrt{69}}{2}} \longrightarrow S=0$ $2P^2-3SP+25$

$P=\frac{-7-\sqrt{69}}{2}$

$2\left(\frac{49+69+14\sqrt{69}}{4}\right)=$

$59+7\sqrt{69}=\frac{118+14\sqrt{69}}{2}$

۰٫۵۹

$y=kx^2-4x-6$ $y=-4x-4$ $\frac{4+9k}{k}=\frac{-8-4k}{k}$

x راس $=\frac{4}{2k}=\frac{2}{k}$ y راس $=\frac{-\Delta}{4a}=\frac{16+24k}{4k} \Rightarrow \frac{4+6k}{k} \rightarrow \frac{20-36}{5} / \frac{9}{5}$ $\frac{-16}{9}$

$4+9k=-8-4k \rightarrow 12=-10k \rightarrow k=-\frac{6}{5}$

۱۱۷ ص ۱۰

$y = -mx^2 + mx + 1$

$y = -m - x$

$-mx^2 + mx + 1 = -m - x$

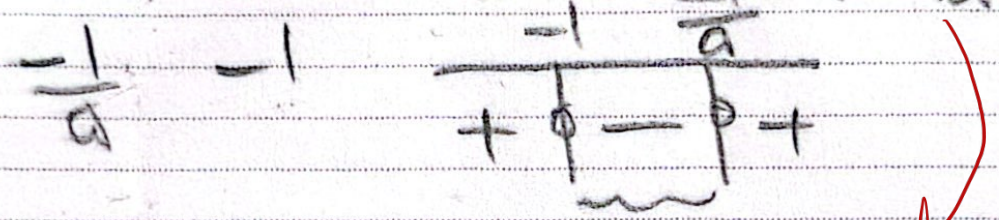
$-mx^2 + mx + 1 + m + x = 0$

$-mx^2 + (m+1)x + 1 + m = 0$

$\Delta < 0 \rightarrow m^2 + 1 + 2m + 4m(1+m) < 0$

$m^2 + 1 + 2m + 4m + 4m^2 < 0$

$5m^2 + 6m + 1 < 0$



$\frac{-1}{5} < m < -1$

هیچ عدد صحیحی در این بازه نیست