۱۹,۵

نام و نام خانوادگی ...علی [illegible]... پاسخنامه تشریحی تکلیف شماره ...۲۵... کلاس ...یازدهم [illegible]...

۱ (۲)

$(0,2) \to 1 - \log_c^{-b} = 2 \to \log_c^{-b} = -1 \to \frac{1}{c} = -b \to cb = -1$

$x^2 - 5x + p = 0 \to x^2 + \frac{3}{2}x - 1 = 0 \to (x+2)(x-\frac{1}{2}) = 0 \to x = -2 \; , \; x = \frac{1}{2}$

$\to c > 0 \to c = \frac{1}{2} \; , \; b = -2 \Rightarrow (-\frac{3}{2}, 0) \to 1 = \log_{\frac{1}{2}}^{-\frac{3}{2}a + 2} \to -\frac{3}{2}a + 2 = \frac{1}{2}$

$\to \frac{3}{2}a = \frac{3}{2} \to a = 1$

$(a+c)b = (\frac{3}{2})(-2) = -3$

۲ (۲)

$(1,0) \to 1 + c \times 3^{a+b} = 0 \to c \times 3^{a+b} = -1$

$(0,\frac{2}{3}) \to 1 + c \times 3^{a} = \frac{2}{3} \to c \times 3^{a} = -\frac{1}{3}$

$\div \Rightarrow 3^b = 3 \to b = 1$

$f(-1) = 1 + \underbrace{c \times 3^{a-b}}_{-\frac{1}{9}} = \frac{8}{9}$

۳ (۲)

$(0,2) \to c + \log_5^{b} = 2$

$(2/4, 0) \to c + \log_5^{2/4a+b} = 0$

$\ominus \to \log_5^{\frac{b}{2/4a+b}} = 2 \to \frac{b}{2/4a+b} = 25$

$\to 60a + 25b = b \to 60a = -24b \to \frac{a}{b} = \frac{-24}{60} = \frac{-2}{5}$

۴ (۲)

$|x^2 - 2| - x > 0$

Sign chart with boundary points $-\sqrt{2}$ and $\sqrt{2}$:

$x^2 - x - 2$ | $-x^2 - x + 2$ | $x^2 - x - 2$

$(x-2)(x+1) \geq 0$: roots $-1, 2$, signs $+ \; - \; +$ → $(-\infty, -\sqrt{2}]$

$-(x-1)(x+2) > 0$: roots $-2, 1$, signs $- \; + \; -$ → $[-\sqrt{2}, 1)$

$(x-2)(x+1) > 0$: roots $-1, 2$, signs $+ \; - \; +$ → $(2, +\infty)$

$\Rightarrow D_f = (-\infty, 1) \cup (2, +\infty)$

۵ (۲)

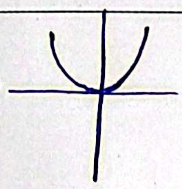
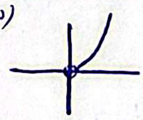
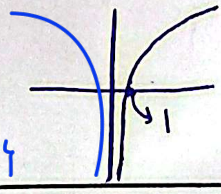
$g(1) = 4$

$f(1) = 4 \to 2 = 2^{b-a} \Rightarrow b - a = 1$

$f(-1) = 10 \to 2^{b+a} = 2^3 \Rightarrow b + a = 3$

$\oplus \; 2b = 4 \Rightarrow b = 2 \; , \; a = 1$

$2b - a = 4 - 1 = 3$

$y = x^2 - x = g(x)$ $g(1)=0 \quad f(1)=0 \to -2+(\frac{1}{2})^{A+B} = 0 \to 2^{-(A+B)} = 2^1 \Rightarrow A+B = -1$ $g(2)=2 \quad f(2)=2 \to -2+(\frac{1}{2})^{2A+B} = 2 \to 2^{-(2A+B)} = 2^2 \Rightarrow 2A+B = -2$ $\Rightarrow A=-1,\ B=0 \quad f(3) = -2+(\frac{1}{2})^{-1(3)} = -2+8 = 6$	(۲)	۶
$\frac{1}{6}A_0 = A_0 \times (\frac{8}{9})^{t/60} \to 6 = (\frac{9}{8})^{t/60} \xrightarrow{\log_5} \log_5 6 = \frac{t}{60}\log_5 \frac{9}{8}$ $\Rightarrow \underbrace{\log_5 3}_{\frac{5}{7}} + \underbrace{\log_5 2}_{\frac{5}{12}} = \frac{t}{60}(2\underbrace{\log_5 3}_{\frac{10}{7}} - 3\underbrace{\log_5 2}_{\frac{15}{12}}) \Rightarrow \frac{95}{12\times7} = \frac{t}{60}(\frac{15}{12\times7}) \Rightarrow t = 380$ ✓	(۲)	۷
$\frac{1}{7}A_0 = A_0 \times (\frac{7}{8})^{t/7} \to \frac{1}{7} = (\frac{7}{8})^{t/7} \to 7 = (\frac{8}{7})^{t/7} \xrightarrow{\log_3} \log_3 7 = \frac{t}{7}\log_3 \frac{8}{7}$ $\to \frac{10}{6} = \frac{t}{7}(\frac{30}{16} - \frac{10}{6}) = \frac{5}{3} = \frac{t}{7}(\frac{35}{96 \cdot 3 \cdot 8}) \Rightarrow t = 56$ ✓	(۲)	۸
$\frac{1}{3} = (\frac{96}{100})^{\frac{t}{1}} \to 3 = (\frac{100}{96})^t \to \log 3 = t \log \frac{100}{96}$ $\Rightarrow \frac{48}{100} = t(2 - \underbrace{\log 96}_{\substack{5\log 2 + \log 3 \\ 1.5 \quad 0.48}}) \Rightarrow \frac{48}{100} = t(\frac{2}{100}) \Rightarrow t = 24$ ✓	(۲)	۹
الف) $9^{\log_3 x} = x^{\log_3 9} = x^2 \to$  $\xrightarrow{D=(0,+\infty)}$  ✓ $y = 2\log x \to$  $\log x^2 \to D = \mathbb{R} - \{0\}$ دامنه رو باید قبل از تغییر ضابطه حساب کنی!	(۱٫۵)	۱۰