зад 1 $A = \{grand, \lambda\}$ $B = \{mother, father, \lambda\}$

$AB = \{grandmother, grandfather, grand, mother, father, \lambda\}$

$A \cup B = \{grand, mother, father, \lambda\}$

$A \cap B = \{\lambda\}$

zag 2

$a^* \rightarrow \{\lambda, a, aa, aaa \ldots\}$

$b^+ \rightarrow \{b, bb, bbb \ldots\}$

$01^* \rightarrow \{0, 01, 001, 0111 \ldots\}$

$(01)^* \rightarrow \{\lambda, 01, 0101, 010101, \ldots\}$

$(0+1)^* \rightarrow \{\lambda, 0, 1, 01, 10, 00, 11, 000 \ldots\}$

$\Sigma = \{0, 1\}$ $\quad \Sigma^*$

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зад 3) $b^* ab^* ab^* \longrightarrow \{\Lambda, b\,a\,b\,a\,b, bb\,a\,bb\,a\,bb, bbb\,a\,bbb\,a\,bbb\}$

$(a+baa)^* = \{\Lambda, \underbrace{a}_{s^0}, \underbrace{baa}_{s^1}, \overbrace{abaa, baaa}^{s^2}, abaa\,baa \ldots\}$

$(ba)^* b = \{\Lambda, bab, ba\,ba\,ba\,b, ba\,ba\,b\}$

Правила за еквивалентност на рег. изрази

зад 4

$$\underbrace{b+aa^*b}_{R} + \underbrace{(b+aa^*b)}_{R}\underbrace{(a+ba^*b)}_{S}{}^*\underbrace{(a+ba^*b)}_{S}$$

$$= R + RS^*S = R\underbrace{(\Lambda + S^*S)}_{S^*} \underset{Пр\,4}{=} RS^* =$$

$$= \cancel{b}\,(\overset{1\ Пр\,4}{\Lambda} + aa^*)\,b\,(a+ba^*b) =$$

$$= a^* b\,(a+ba^*b)$$

зад 5

$$\Lambda + \underbrace{b^*}_{}(\underbrace{abb}_{})^*(\underbrace{b^*}_{}(\underbrace{abb}_{})^*)^*$$

$$\Lambda + R \quad \Lambda + R \quad \Lambda + \underbrace{R^* S^*}_{} \underbrace{(R^* S^*)^*}_{}$$

$$\Lambda + RR^* = R^*$$

$$\lambda + \underbrace{b^*(abb)^*}_{R}\,(\underbrace{b^*(abb)^*}_{R})^* = \lambda + R.R^* \overset{\text{пр и}}{=} R^*$$

$$\boxed{(b^*(abb)^*)^*}$$

отдело (инто опция)

зад 6 $aa(b^*+a) + a(ab^*+aa) =$

$$= \underbrace{aa(b^*+a)}\, + \underbrace{aa(b^*+a)} = R+R = aa(b^*+a)$$