① $\left(\sqrt{225}-3\sqrt{121}\right):\left(2\sqrt{0{,}09}+0{,}074\cdot\sqrt{10000}\right)=$

$=(15-3\cdot 11):(2\cdot 0{,}3+0{,}074\cdot 100)=$

$=(15-33):(0{,}6+7{,}4)=$

$=-18:8=-\frac{18}{8}=-\frac{9}{4}$ špatně (A) ✱

② $|3x-6|=9$

$3x-6=9$ $\quad -(3x-6)=9$

$3x=15$ $\quad -3x+6=9$

$x=5$ $\quad -3x=3$

$x=-1$

(B) GMA

③ $|2a-6|-(2a-4)=-2 \iff$

$|2a-6|=-2+(2a-4)=2a-6$

$\iff 2a-6\geq 0 \iff a\geq 3$

④ $x+\frac{3}{2}<2x+\frac{1}{2}<\frac{3}{2}(x+2)$

$x+3/2<2x+1/2$ $\quad 2x+1/2<\frac{3}{2}(x+2)$

$2x+3<4x+1$ $\quad 4x+1<3x+6$

$-2x<-2 \ |:(-2)$ $\quad x<5$

$x>1$

$1<x<5$

⑤ $\frac{\sqrt{5}+\sqrt{7}}{\sqrt{5}-\sqrt{7}}-\frac{\sqrt{5}-\sqrt{7}}{\sqrt{5}+\sqrt{7}}+\sqrt{140}=$

$=\frac{(\sqrt{5}+\sqrt{7})^2-(\sqrt{5}-\sqrt{7})^2}{5-7}+\sqrt{4\cdot 35}=$

$=\frac{5+7+2\sqrt{35}-(5+7-2\sqrt{35})}{-2}+2\sqrt{35}=$

$=\frac{+4\sqrt{35}}{-2}+2\sqrt{35}=0$

⑥ $\left(\sqrt{7+4\sqrt{3}}+\sqrt{7-4\sqrt{3}}\right)^2-\left(\frac{1}{2}\right)^{-4}=$

$=7+4\sqrt{3}+2\sqrt{(7+4\sqrt{3})(7-4\sqrt{3})}+7-4\sqrt{3}-16=$

$=14+2\sqrt{49-48}-16=0$

⑦ 1. vzorec: x

2. " : $x+10\%\cdot x=1{,}1x$

3. " : $x+30\%\cdot x=1{,}3x$

sloupaj: $3{,}4x=17\cdot 10^4$

$x=\frac{17\cdot 10^4}{3{,}4}=\frac{170}{34}\cdot 10^4=$

$x=5\cdot 10^4=50000$

1. vzorec: $x=50000$

2. " : $x\cdot 1{,}1=55000$

3. " : $x\cdot 1{,}3=65000$

✱

① $\left(\sqrt{\frac{0{,}04}{0{,}01}}+\sqrt{1{,}44}\right):\sqrt{8{,}1\cdot\frac{10}{25}}=$

$=\left(\sqrt{\frac{4}{1}}+\sqrt{\frac{144}{100}}\right):\sqrt{\frac{81}{25}}=$

$=\left(2+\frac{12}{10}\right):\frac{9}{5}=$

$=\frac{32}{10}\cdot\frac{5}{9}=\frac{32}{18}=1\frac{14}{18}=1\frac{7}{9}$