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$=(2,1,-2)$ wrt $\{e^1,e^2,e^3\}$

Also $\theta^2=(0,1,0)$, and equals

$$(0,1,0)\begin{pmatrix}2&1&-2\\1&2&-2\\-2&-2&3\end{pmatrix}=(1,2,-2) \text{ wrt } \{e^1,e^2,e^3\}$$

And $\theta^3=(0,0,1)$, and equals

$$(0,0,1)\begin{pmatrix}2&1&-2\\1&2&-2\\-2&-2&3\end{pmatrix}=(-2,-2,3) \text{ wrt } \{e^1,e^2,e^3\}$$

$*(\theta^3)=\theta^1\wedge\theta^2$

$=(2e^1+e^2-2e^3)\wedge(e^1+2e^2-2e^3)$

in decomposable form

or $*(\theta^3)$ $4e^1\wedge e^2-4e^1\wedge e^3-e^1\wedge e^2-2e^2\wedge e^3$

$+2e^1\wedge e^3+4e^2\wedge e^3$

$=3e^1\wedge e^2-2e^1\wedge e^3+2e^2\wedge e^3$

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2) $\rho_s(\rho_t(x))=\rho_s(y+R_t(x-y)+tv)$

$=y+R_s(y+R_t(x-y)+tv-y)+sv$

$=y+R_s(R_t(x-y)+tv)+sv$

$=y+R_s(R_t(x-y))+R_s(tv)+sv$ sin R linear

v is directed along rotation axis of $R\Rightarrow R_s(tv)=tv$, and since R_t is a one parameter group $R_s(R_t(x-y))=R_{s+t}(x-y)$

You've shown the ρ_t form a group - not that they are isometries

$\therefore \rho_s(\rho_t(x))=y+R_{s+t}(x-y)+(s+t)v$

$=\rho_{s+t}(x)$

3

+1 for

ρ is a one parameter subgroup.

ii) If $\underline{v}=\underline{0}$ then $\rho_t(x)=y+R_t(x-y)$

what you say on next page.