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$$If\ \ x,y,z,r,s,t,u,v,w>0\ \ then:$$

$$(x^2+ru^2)(y^2+sv^2)(z^2+tw^2)\ge\frac{3}{4}\left(x\sqrt{s}.\sqrt{t}.vw+y\sqrt{r}.\sqrt{t}.uw+z\sqrt{r}.\sqrt{s}.uv\right)^2$$

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*Solution by Mirsadix Muzefferov-Azerbaijan*

$$(x^2+ru^2)(y^2+sv^2)(z^2+tw^2)=$$

$$=(rst)(uvw)^2\left(\frac{x^2}{ru^2}+1\right)\left(\frac{y^2}{sv^2}+1\right)\left(\frac{z^2}{tw^2}+1\right)\overset{Arkady\ \ Alt's}{\ge}$$

$$\ge\frac{3}{4}.1^4.\left(\frac{x}{\sqrt{ru}}+\frac{y}{\sqrt{sv}}+\frac{z}{\sqrt{tw}}\right)^2.(rst)(uvw)^2=$$

$$=\frac{3}{4}\left(x\sqrt{s}.\sqrt{t}.vw+y\sqrt{r}.\sqrt{t}.uw+z\sqrt{r}.\sqrt{s}.uv\right)^2$$

$$Equality\ \ holds\ \ for:\frac{x}{\sqrt{ru}}=\frac{y}{\sqrt{sv}}=\frac{z}{\sqrt{tw}}=\frac{1}{\sqrt{2}}$$