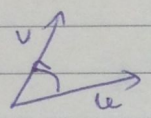
3 октомври 2013 - Изчислителна геометрия

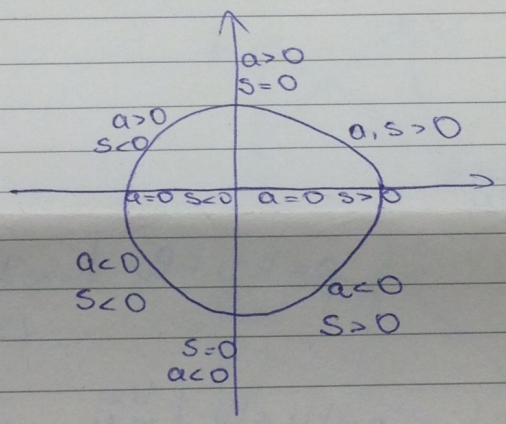
u, v



$u \times v$ → лицево произведение

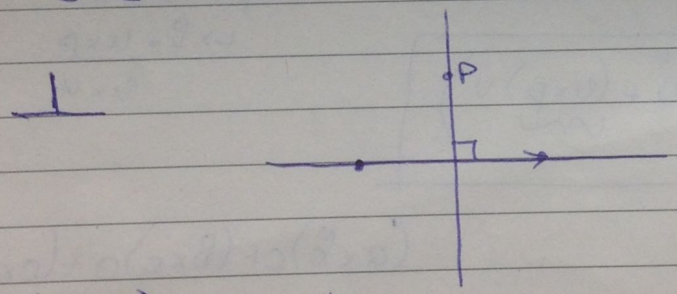
$\operatorname{atan2}(u \times v, u.v) = |u||v|(\sin(u,v), \cos(u,v))$

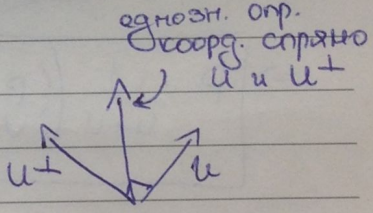
a - лицево
s - скалярно



скаларно произв
– тъп ъгъл
+ остър ъгъл

лицево произв.
едното или др.
предхождане





$k(u+v) = ku + kv$

$(k_1 + k_2)u = uk_1 + uk_2$

$u(v_1 + v_2) = uv_1 + uv_2$

$u \times (v_1 + v_2) = u \times v_1 + u \times v_2$

$u.v = v.u$

$u \times v = -v \times u$

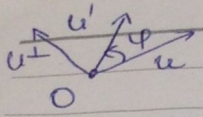
$u \times v = u^{\perp}.v$

$(u^{\perp})^{\perp} = -u$

$u^{\perp} \times v^{\perp} = u \times v$

$u^{\perp}.v^{\perp} = u.v$

$u \times v^{\perp} = u^{\perp}.v^{\perp} = u.v$



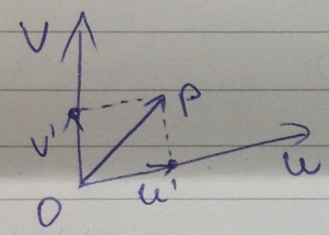
$u' = \cos\varphi \cdot u + \sin\varphi \cdot u^{\perp}$

$(u \times v)^2 + (u \cdot v)^2 = u^2 \cdot v^2$

$\sin^2 \ldots + \cos^2 \ldots = 1$

$\frac{1}{2}(x_1 y_2 - x_2 y_1)$

$u \times v \neq 0$



$0uv$

$p = ku + \ell v \mid \times v \rightarrow p \times v = k\, u \times v$

$\hookrightarrow k = \frac{p \times v}{u \times v}$

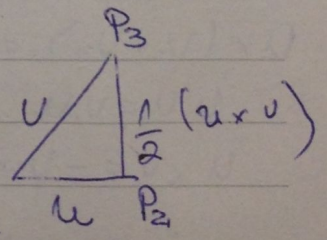
$p = ku + \ell v \mid u\times \rightarrow u \times p = \ell\, u \times v$

$\hookrightarrow \ell = \frac{u \times p}{u \times v}$

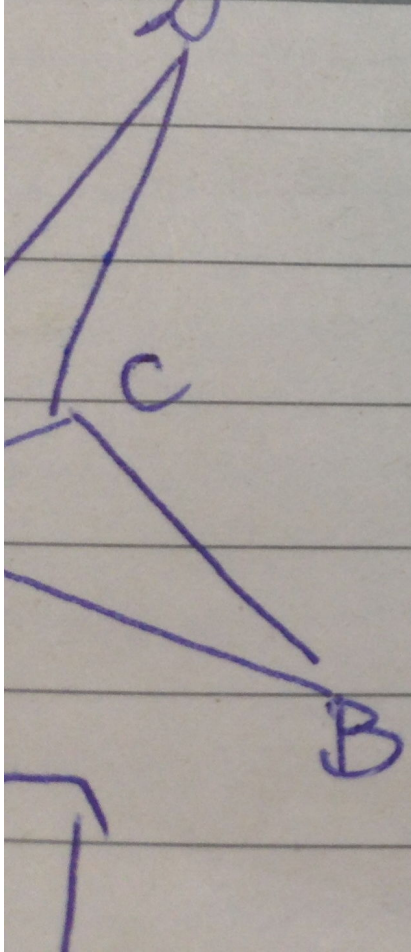
$$\Rightarrow \boxed{p = \frac{1}{u \times v}\left((p \times v)u + (u \times p)v\right)}$$

$(a \times b)c + (b \times c)a + (c \times a)b = 0$

$v = u^{\perp} : p = \frac{1}{u^2}\left((up) \cdot u + (u \times p)u^{\perp}\right)$



$= \frac{1}{2}(P_1 \times P_2 + P_2 \times P_3 + P_3 \times P_1)$



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