

# Priiloža: Analytika k otāzkaīm 12, 13, 14, 15, 17, 18, 19

## vektors

stokā

$$\vec{u} = (u_1; u_2; \dots; u_m)$$

-  $m \dots$  komponentu vektoram

-  $|\vec{u}| \dots$  veiktas vektoram

$$|\vec{u}| = \sqrt{u_1^2 + u_2^2 + \dots + u_m^2}$$
$$|\vec{u}| = u$$

- vektoru veidošanai no punkta A do punkta B

$$A [x_A; y_A] \quad B [x_B; y_B]$$

$$\vec{v} = B - A$$

$$\vec{v} = (x_B - x_A; y_B - y_A)$$

- Operācijas ar vektoru:

• mārobeni reāliem skaitļiem

$$c \cdot \vec{u} = (cu_1; cu_2; \dots; cu_m)$$

• sūnāšanai

$$\vec{w} = \vec{u} + \vec{v}$$

$$\vec{w} = (u_1 + v_1; u_2 + v_2; \dots; u_m + v_m)$$

• skaitļiem

analogiski

• skalāru reizināšana

$$\vec{u} \cdot \vec{v} = u_1 \cdot v_1 + u_2 \cdot v_2 + \dots + u_m \cdot v_m$$

$$\cos \alpha = \frac{\vec{u} \cdot \vec{v}}{|\vec{u}| \cdot |\vec{v}|}$$

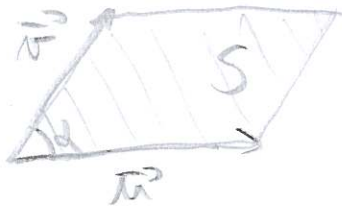
$\alpha \dots$  riņķa leņķis starp  $\vec{u}$  un  $\vec{v}$

$$\alpha = 90^\circ \dots \vec{u} = (a; b)$$

$$\vec{u} \cdot \vec{v} = u \cdot v \cdot \cos \alpha \quad \vec{v} = (b; -a) \vee \vec{v} = (-b; a)$$

• rektangulárne roviny - normálna komulativita!

$$\vec{u} \times \vec{v} = (u_y \cdot v_z - u_z \cdot v_y; u_z \cdot v_x - u_x \cdot v_z; u_x \cdot v_y - u_y \cdot v_x)$$

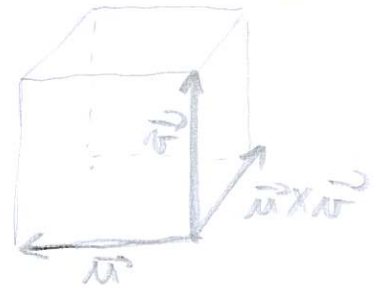


$$\vec{u} = (u_x; u_y; u_z) \quad u_x \quad u_y$$

$$\vec{v} = (v_x; v_y; v_z) \quad v_x \quad v_y$$

$$|\vec{u} \times \vec{v}| = S$$

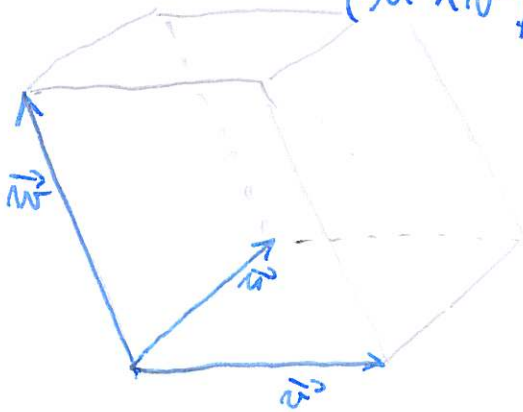
$$|\vec{u} \times \vec{v}| = u \cdot v \cdot \sin \alpha$$



• smúvajúcej roviny

$$(\vec{u} \times \vec{v}) \cdot \vec{w}$$

$$|(\vec{u} \times \vec{v}) \cdot \vec{w}| = V$$



$$u \cdot v \cdot \sin \alpha \quad w \cdot \cos \beta$$