$-x - y - 2z \underbrace{+0} = 0$

0

[illegible]

T(1, 0, -1)

Vdaljenost ravnine

$-x - y - 2z - 0 = 0$

i T(1, 0, -1)

$x_0\ y_0\ z_0$

Zadaća Moodle

$$\vec{r} = \begin{bmatrix} 1 \\ 2 \end{bmatrix} \cdot \begin{bmatrix} \cos(60^\circ) & -\sin(60^\circ) \\ \sin(60^\circ) & \cos(60^\circ) \end{bmatrix} = \begin{bmatrix} -1.232050808 \\ 1.866025404 \end{bmatrix}$$

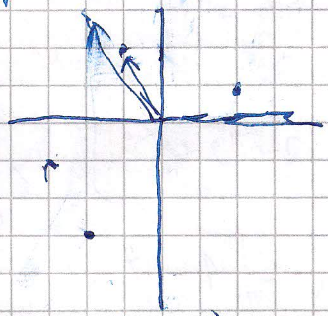
$$\begin{bmatrix} 3 & 0 \\ 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} -1.232050808 \\ 1.866025404 \end{bmatrix} = \begin{bmatrix} -3.696152424 \\ 1.866025404 \end{bmatrix}$$

Ponavljanje geometrije ravnine

1.

T(-2, -3)

a) $\vec{x} = \begin{bmatrix} -1 \\ 2 \end{bmatrix}$



T'(-3, -1)

b) T(-2, -3) A(2, 1)

$$\begin{bmatrix} -2 \\ -3 \end{bmatrix} + \begin{bmatrix} 4 \\ 4 \end{bmatrix} = \begin{bmatrix} 2 \\ 1 \end{bmatrix}$$

$$\begin{bmatrix} -2 \\ 3 \end{bmatrix} + \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 2 \\ 1 \end{bmatrix}$$

$-2 + x = 2$

$x = 4$

$3 + y = 1$

$y = 4$

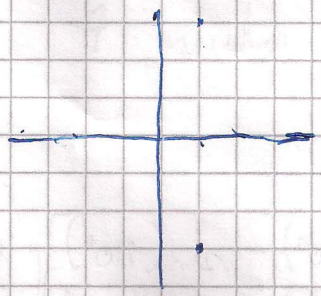
T(-2, -3)

c) $\vec{r}_T = \begin{bmatrix} -2 \\ -3 \end{bmatrix}$

$$\begin{bmatrix} -2 \\ -3 \end{bmatrix} + \begin{bmatrix} -2 \\ -3 \end{bmatrix} = \begin{bmatrix} -6 \\ -6 \end{bmatrix}$$

2.

$T(1,-3)$



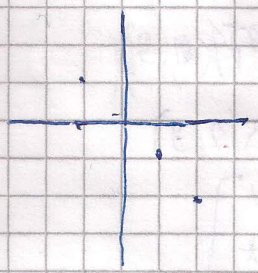
a) $x-os$

$$\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix} \cdot \begin{bmatrix} 1 \\ -3 \end{bmatrix} = \begin{bmatrix} 1 \\ 3 \end{bmatrix}$$

$$\begin{bmatrix} 1 \\ -3 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$$

b) $y = -x$

[



c)

$T'(-1,-3)$ $T(1,-3)$

$$\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} -1 \\ -3 \end{bmatrix} = \begin{bmatrix} 1 \\ -3 \end{bmatrix}$$

3.

$T(5,2)$

$$\begin{bmatrix} 1 & 0 \\ 0 & 2 \end{bmatrix} \cdot \begin{bmatrix} 5 \\ 2 \end{bmatrix} = \begin{bmatrix} 5 \\ 4 \end{bmatrix}$$

$T'(2,3)$

$$\begin{bmatrix} k & 0 \\ 0 & l \end{bmatrix} \cdot \begin{bmatrix} 5 \\ 2 \end{bmatrix} = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$$

$$\begin{bmatrix} 5k \\ 2l \end{bmatrix} = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$$

$5k = 2 \mid :5$

$k = \frac{2}{5}$

$l = \frac{3}{2}$

4.

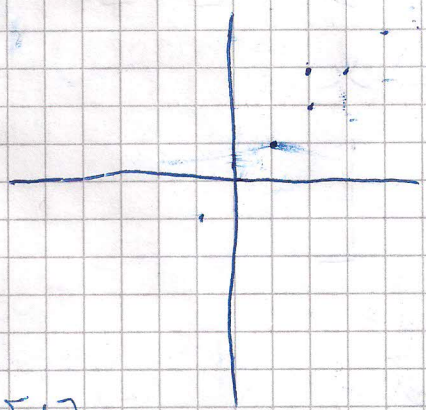
$T(2,4)$

$\vec{r} = \begin{bmatrix} 2 \\ 4 \end{bmatrix}$ $\quad R = \begin{bmatrix} \cos(-180^\circ) & -\sin(-180^\circ) \\ \sin(-180^\circ) & \cos(-180^\circ) \end{bmatrix}$

$\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix} \cdot \begin{bmatrix} 2 \\ 4 \end{bmatrix} = \begin{bmatrix} -2 \\ -4 \end{bmatrix}$

5. a) $y = x$ $\quad \begin{bmatrix} t \\ t \end{bmatrix}$

$T(2,3)$



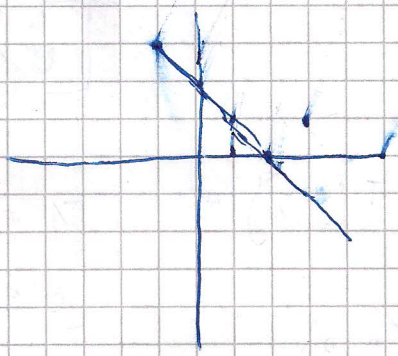
$\begin{bmatrix} t \\ t \end{bmatrix} + \begin{bmatrix} 2 \\ 3 \end{bmatrix} = \begin{bmatrix} 2+t \\ 3+t \end{bmatrix}$

b)

$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \quad \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} t \\ t \end{bmatrix} = \begin{bmatrix} t \\ t \end{bmatrix}$

6.

$y = 2 - x$



$\begin{bmatrix} t \\ 2-t \end{bmatrix} + \begin{bmatrix} 3 \\ 1 \end{bmatrix} = \begin{bmatrix} 3+t \\ 3-t \end{bmatrix}$

$y + 2 = 2 - x$

$y = -x$

4. ogledni primjer 4. zadatak

$y = x^3$

$\begin{bmatrix} t \\ t^3 \end{bmatrix}$ $\begin{bmatrix} 2 & 0 \\ 0 & 1 \end{bmatrix}$

$$\begin{bmatrix} 2 & 0 \\ 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} t \\ t^3 \end{bmatrix} = \begin{bmatrix} 2t \\ t^3 \end{bmatrix}$$

$A(1, -2)$

$\begin{bmatrix} -0.94 & -0.34 \\ & \end{bmatrix}$

$$\begin{bmatrix} -0.9396926208 & -0.3420201433 \\ -0.3420201433 & 0.9396926208 \end{bmatrix}$$

-0.255

$\begin{bmatrix} -1-t \\ -4+2t \\ 1-3t \end{bmatrix}$ i $\begin{bmatrix} 1-t \\ -4+t \\ 1-t \end{bmatrix}$

$-1-t = 1-u \rightarrow$ ~~$t = -u$~~

$-4+2t = -4+u$ ~~$t = u$~~

$1-3t = 1-u$ $-t = 2-u$

$t = -2+u$

$-3t = -u / :(-3)$

$t = \frac{u}{3}$

$-1-\frac{u}{3} = 1-u$

0.7071067812 2.121320344

-0.7071067812 2.121320344

$$\begin{bmatrix} -t \\ -1+3t \\ -4+2t \end{bmatrix} \quad \begin{bmatrix} -2+3t \\ 2t \\ -3+t \end{bmatrix}$$

$-t = -2+3v$

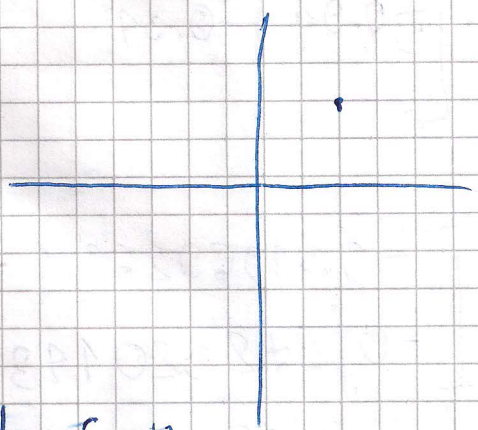
$-1+3t = 2v \rightarrow 3t = 2v+1$

$-4+2t = -3+v \qquad t = \frac{2v+1}{3}$

-1.532088886 -1.285575219

0.6427876097 0.7660444431

$$\begin{bmatrix} 1 \\ 2 \end{bmatrix}$$



$$\begin{bmatrix} -4-t \\ t \\ 2+2t \end{bmatrix} \quad \begin{bmatrix} 1-t \\ -5+t \\ -2 \end{bmatrix}$$

$t = -5+v$

$-2 = -5+v$

$2+2t = -2$

$v = 3$

$2t = -4$

$t = -2$

$$\begin{bmatrix} -2 \\ 2 \end{bmatrix}$$

$x = -4$

$y = -1$

$z = 2$

$$\begin{bmatrix} 1 \\ 2 \end{bmatrix}$$

$$\begin{bmatrix} -2 \\ -1 \end{bmatrix} \quad \begin{bmatrix} 1 \\ 2 \end{bmatrix}$$

Sadatni sustav

Kod skaliranja i rotacije

pa ukoliko skaliramo pa

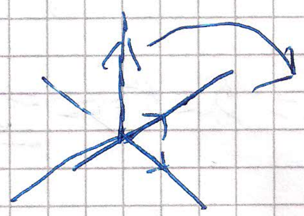
rotiramo, dobije $S \cdot R$

Kod se traži da su pravci paralelni $\vec{s}_1 = k\vec{s}_2$

↓ realni broj

Kod se traži da su pravci okomiti

$\vec{s}_1 \cdot \vec{s}_2 = 0$



Kada trebamo odrediti da

pravac bude okomit na dva

pravca onda $\vec{s}_1 \times \vec{s}_3 = s$