

Vitorius

01^a) $u = (1, 2, 3)$,
 $v = (3, 2, 0)$
 $w = (2, 0, 0)$

$$\begin{cases} 1a + 3b + 2c = 1 \\ 2a + 2b + 0c = 1 \\ 3a + 0b + 0c = 1 \end{cases}$$

$$a = \frac{1}{3}$$

$$2b = 1 - \frac{2}{3}$$

$$2c = 1 - \frac{1}{3} - \frac{1}{2}$$

$$b = \frac{1}{3} \Rightarrow \frac{1}{6}$$

$$2c = 1 - \frac{5}{6}$$

$$c = \frac{1}{6} \Rightarrow \frac{1}{12}$$

02^a)

múltiplo $\Leftrightarrow x_i y_j = x_j x_i$

$$u = k \cdot v, \quad k \in \mathbb{Z}$$

então

$$x_i = k \cdot y_i \quad (* y_j)$$

$$x_i y_j = (k y_j) \cdot y_i$$

x_j

$$x_i y_j = x_j \cdot y_i$$

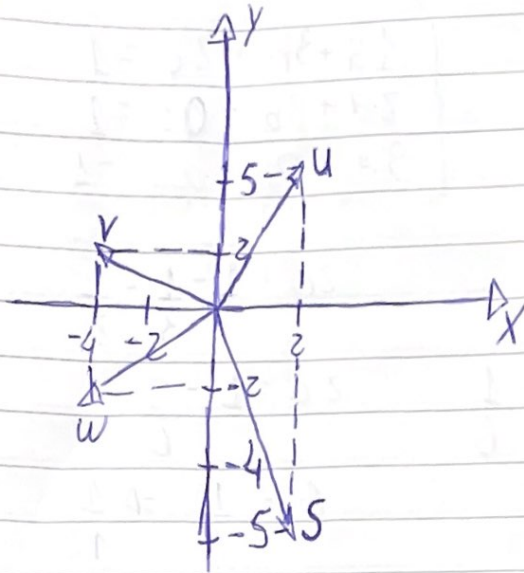
$$x_i y_j = x_j y_i$$

Suponha $k = \frac{x_1}{y_1}, \quad y_1 \neq 0$

$$x_j = \frac{x_j y_i}{y_j}$$

$$x_i = k \cdot y_i$$

03^a)



04^a) $u = (3, -4)$
 $v = (-\frac{9}{4}, 3)$

$a \text{ e } b \mid u = a \cdot v$
 $v = b \cdot u$

$(3, -4) = a \cdot (-\frac{9}{4}, 3)$

$(-\frac{9}{4}, 3) = b \cdot (3, -4)$

$a = \frac{3}{-\frac{9}{4}} \Rightarrow 3 \cdot \frac{4}{-9} \Rightarrow \boxed{\frac{-12}{9}}$

$b = \frac{-\frac{9}{4}}{3} \Rightarrow \boxed{\frac{-9}{12}}$

$\frac{-12}{9} \cdot 3 = -4 \Rightarrow \boxed{-4 = -4}$

$\frac{-9}{12} \cdot -4 = 3 \Rightarrow \boxed{3 = 3}$

$$05^a) w = (1, 2, -3)$$

$$s = (0, 3, 2)$$

$$\begin{cases} \vec{u} + \vec{v} = (1, 2, -3) \end{cases}$$

$$\begin{cases} 3\vec{u} - 2\vec{v} = (2, 4, -6) + (0, 3, 2) \end{cases}$$

$$\vec{v} = (1, 2, -3) - \vec{u}$$

$$3\vec{u} - 2((1, 2, -3) - \vec{u}) = (2, 4, -4)$$

$$3\vec{u} - (-2, -4, 6) - 2\vec{u} = (2, 4, -4)$$

$$\vec{u} = (0, 3, 2)$$

$$\vec{v} = (1, 2, -3) - (0, 3, 2)$$

$$\vec{v} = (1, -1, -5)$$

$$(0, 3, 2) + (1, -1, -5) = (1, 2, -3)$$

$$(1, 2, -3) = (1, 2, -3) \quad \checkmark$$