Avaliação: Final

①

$2x - AB = x + (BC \cdot AB)AC$

$2x - x = AB + (BC \cdot AB)AC$

$x = AB + (BC \cdot AB)AC =$

$AB = (-4-(-1), 1-0, 1-2)$ $\quad AC = (0-(-1), 1-0, 3-2)$

$AB = (-3, 1, -1)$ $\quad AC = (1, 1, 1)$

$BC = (0-(-4), 1-1, 3-1)$

$BC = (4, 0, 2)$

$2x - (-3, 1, -1) = x + (4(-3) + 0 \cdot 1 + 2(-1))(1, 1, 1)$

$2x - (-3, 1, -1) = x + (-12 - 2)(1, 1, 1)$

$2x - (-3, 1, -1) = x + (-14, -14, -14)$

$2x - x = (-3, 1, -1) + (-14, -14, -14)$

$x = (-3-14, 1-14, -1-14)$

$\boxed{x = (-17, -13, -15)}$

②

$\vec{v} \cdot \vec{u} = -18$

$V = (1, -1, 2)$

$V = ?$

$V = (t, -t, 2t)$

$V = (1, -1, 2) \cdot (t, -t, 2t)$

$u \cdot V = (1, -1, 2) \cdot (t, -t, 2t) \quad -2 + 2 + 4t$

$t + t + 4t = -18$

$6t = -18$

$t = -3$

$V = (t, -t, 2t)$

$V = (-3, 3, -6)$

(3-) $VZ = 0$

$x \cdot 2 + (-2)(-1) + 3 \cdot 2 = 0$

$2x + 2 + 6 = 0$

$2x = -8$

$x = \frac{-8}{2}$

$x = -4$

(4-) $\vec{v} = (2, -1, 1)$; $\vec{v} = (1, -1, 0)$; $\vec{\omega} = (-1, 2, 2)$

$(\vec{v} + \vec{v}) \cdot (\vec{u} \cdot \vec{\omega})$

$((2, -1, 1) + (1, -1, 0)) \cdot ((2, -1, 1)(-1, 2, 2))$

$(3, -2, 1) \cdot (-2, -2, 2) =$

$(-6, 4, 2)$

(5-) $\vec{A}^{13}\ (6, 2, 9)$

$\cos x = \frac{6}{\sqrt{(6)^2 + (2)^2 + (9)^2}}$

$\cos 2 = \frac{6}{\sqrt{121}}$

$\cos = \frac{6}{11}$

$\cos y = \frac{2}{\sqrt{121}}$

$\cos y = \frac{2}{11}$

$\cos 2 = \frac{9}{\sqrt{121}}$

$\cos 2 = \frac{9}{11}$