

$$\begin{pmatrix} 3 \\ 1 \\ 4 \end{pmatrix} - \begin{pmatrix} 2 \\ 3 \\ -1 \end{pmatrix}^{a_1} = \begin{pmatrix} 1 \\ 2 \\ -3 \end{pmatrix} s - \begin{pmatrix} 2 \\ 2 \\ -2 \end{pmatrix}^{a_2} r$$

$$\begin{pmatrix} 1 \\ -2 \\ 5 \end{pmatrix} = \begin{pmatrix} s - 2r \\ 2s - 2r \\ -3s + 2r \end{pmatrix}$$

$$s(-1|-3|0)$$

$$s = 1 + 2r = -3$$

$$-2 = 2 + 4r - 2r \quad | -2$$

$$-4 = 2r \quad | :2$$

$$r = -2$$

$$2 \cdot 2 = 4$$

$$6 = 12$$

$$2$$

$$s = (-3) \cdot (-3) + 2 \cdot (-2)$$

$$s = 5$$

$$\varphi = \arccos \left( \frac{12}{\sqrt{12} \cdot \sqrt{14}} \right)$$

$$|a_1| = \sqrt{4+9+1} = \sqrt{14}$$

$$\varphi = 22,2^\circ$$

$$|a_2| = \sqrt{4+4+4} = \sqrt{12}$$