

解析几何

January 4, 2019

作业 (P118: 2, 3)

2解: 直接计算知

$$\begin{vmatrix} 2 & 3 & -1 \\ 1 & 2 & -4 \\ 0 & 1 & -6 \end{vmatrix} = 0$$

从而 a^*, b^*, c^* 共线.

如果 $a^* = \lambda b^* + \mu c^*$, 则有

$$2 = \lambda, 3 = 2\lambda + \mu.$$

解得 $\lambda = 2, \mu = -1$.

由 $a^* = 2b^* - c^*$ 即得 $b'^* = (2, 4, -8), c'^* = (0, 1, -6)$.

3解: 由已知 $\xi = (1, 0, -1), \eta = (0, 1, 1), \zeta = (2, 1, -1), \varphi = (1, 1, 2)$, 可知

$$\xi \times \eta = (1, -1, 1), \zeta \times \varphi = (3, -5, 1).$$

即得 $(\xi \times \eta) \times (\zeta \times \varphi) = (4, 2, -2)$. 从而直线方程为

$$2x_1 + x_2 - x_3 = 0.$$