

5.18

den 23 januari 2011
14:27

Är linjerna ortonormerade?

$$v_1 = (-2, 1, 2) ; v_2 = (2, 2, 1)$$

$$v_1 \cdot v_2 = 0 \quad \text{ok}$$

Välj $e_1 = \frac{1}{3}(-2, 1, 2)$ och $e_2 = \frac{1}{3}(2, 2, 1)$

och $e_3 = e_1 \times e_2$, dvs

$$\begin{aligned} \frac{1}{3}(-2, 1, 2) \times \frac{1}{3}(2, 2, 1) &= \frac{1}{9}(-3, 6, -6) \\ &= \frac{1}{3}(-1, 2, -2) \end{aligned}$$

$p: (1, 2, 3)$ i ny bas

$$\hat{x}_1 = (1, 2, 3) \cdot e_1 = \frac{1}{3} \cdot 6 = 2$$

$$\hat{x}_2 = (1, 2, 3) \cdot e_2 = \frac{1}{3} \cdot 9 = 3$$

$$\hat{x}_3 = (1, 2, 3) \cdot e_3 = \frac{1}{3} \cdot (-3) = -1$$

$$\hat{x}_j = (1, 2, 3) \cdot e_j = \frac{1}{3} \cdot (-3) = -1$$