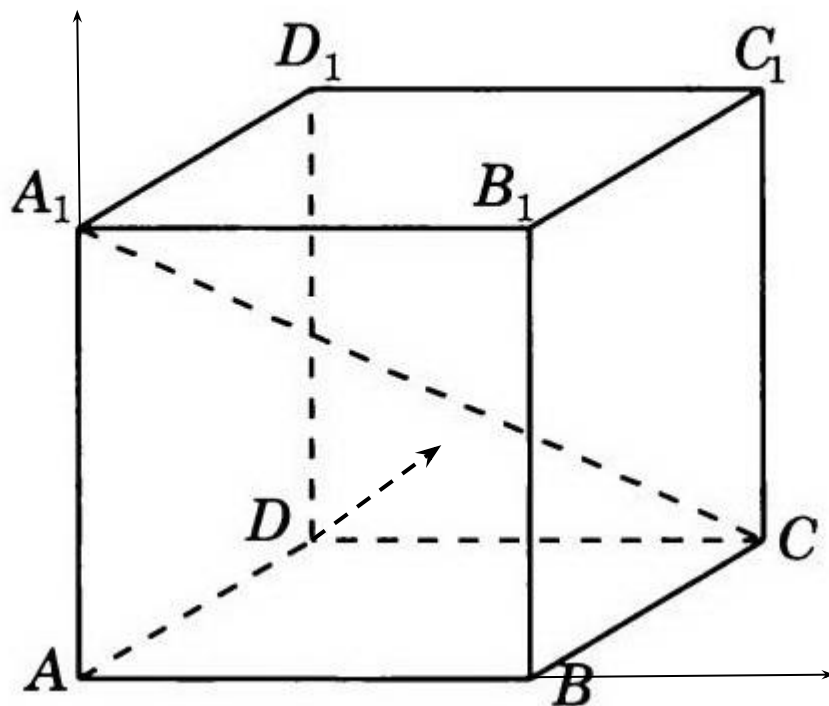


В кубе $A...D_1$ найдите косинус угла между прямыми AB и CA_1 .



$$A(0,0,0)$$

$$A_1(0,0,1)$$

$$B(1,0,0)$$

$$C(1,1,0)$$

$$AB\{x,y,z\} = B(1,0,0) - A(0,0,0) = AB\{1,0,0\}$$

$$CA_1\{x,y,z\} = C(1,1,0) - A_1(0,0,1) = CA_1\{1,1,-1\}$$

$$(AB, CA_1) = |AB| \cdot |CA_1| \cdot \cos(AB, CA_1)$$

$$\cos(AB, CA_1) = (AB, CA_1) / |AB| \cdot |CA_1|$$

$$(AB, CA_1) = 1 \cdot 1 + 0 \cdot 1 + 0 \cdot (-1) = 1$$

$$|AB|^2 = 1^2 + 0^2 + 0^2 = 1$$

$$|CA_1|^2 = 1^2 + 1^2 + (-1)^2 = 3$$

$$\cos(AB, CA_1) = 1 / \sqrt{3}$$