given:

$$c = E(k, m) = m \oplus k$$

$$D(k, c) = c \oplus k = m \underbrace{\oplus k \oplus k}_{=\phi} = m \oplus \phi = m$$

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1. $c_1 = E(k, m_1) = m_1 \oplus k$

c_1 = flag, enc. m_1 = flag

c_2 = 'original notflag', m_2 = dec

2. $D(k, c_2) = c_2 \oplus k = m_2 \oplus k \oplus k = m_2 \oplus \phi = m_2$

$D(k, \text{notflag}) = \text{notflag} \oplus k = dec \oplus k \oplus k = dec \oplus \phi = dec$

$$\text{notflag} \oplus k = dec \oplus \phi$$

$$\text{notflag} \oplus k = dec$$

~

$c_1 \oplus c_2 = m_1 \oplus m_2$

$$enc \oplus \text{notflag} = \text{flag} \underbrace{\oplus dec \oplus dec}_{\phi}$$

$$\oplus dec$$

$$enc \oplus \text{notflag} \oplus dec = \text{flag}$$