

**Soluții**

1. a)  $I_2' = I_2; I_2 + I_2' = 2I_2 = \begin{pmatrix} 2 & 0 \\ 0 & 2 \end{pmatrix}.$

b)  $mA = \begin{pmatrix} ma & mc \\ mb & md \end{pmatrix}; (mA)^t = \begin{pmatrix} ma & mc \\ mb & md \end{pmatrix}; mA^t = \begin{pmatrix} ma & mc \\ mb & md \end{pmatrix}.$

c)  $A + A^t = \begin{pmatrix} 2a & b+c \\ b+c & 2d \end{pmatrix} \Rightarrow a=d=0, c=-b, \text{ deci } A = \begin{pmatrix} 0 & b \\ -b & 0 \end{pmatrix}.$

2. a)  $x * x = x \Leftrightarrow (x - \sqrt{2})^2 = x - \sqrt{2} \Leftrightarrow x = \sqrt{2} \text{ sau } x = \sqrt{2} + 1.$

b)  $(x * y) * z = x * (y * z) = (x - \sqrt{2})(y - \sqrt{2})(z - \sqrt{2}) + \sqrt{2}$

c)  $x * e = x, \forall x \in \mathbb{R} \Leftrightarrow e = \sqrt{2} + 1, \text{ acesta fiind și element neutru la stânga.}$