

It is observed from frequent experimentation has shown that drawing pulling the identical bars from of steel and rubber having the same initial lengths by the same axial force, and consequently thus the same axial stress, results of stress in different elongations from of these two bars. This material In mechanics, the difference the two bars in mechanical the materials of the two bars is represented by the the relationship between the components of stress and the strain. By The writing expressing each of these like as a column matrix of column, i.e.

$$\{\rho\}^T = [\rho_{12} \rho_{22} \rho_{33} \rho_{32} \rho_{31}] \quad (1)$$

$$\{d\}^T = [d_{12} d_{22} d_{33} d_{32} d_{31}] \quad (2)$$

have us

we obtain

$$\{\rho\} = [X] \{d\} \text{ or } \rho_\alpha = X_{\alpha\beta} d_\beta, \alpha, \beta = 1, 2, \dots, 5. \quad (3)$$

where Here, X is a 5×5 matrix that characterizes the material of the body, and is generally. It is generally called known as the matrix of elasticity and matrix its components elasticity's are called elasticities or

elastic constants of elasticity for the material of the body. Note that The shear strains have been multiplied by 2 in eqn Eq. (2); the definitions (1) and (2) make ensure that $\rho_{ij} d_{ij} = \rho_\alpha d_\alpha$. The stress-strain equation

(3), in other words the relation shown in between the stresses and strains, are Eq. (3) is called known as the relation constitutive relation for the material of the body. It is assumed in Eq. (3) that the body is

stress-free in the reference configuration of reference from which the strain d is measured.

Comment [A1]: The verb should agree with the subject of the sentence. Because "experimentation" is singular, the verb form "has" will also be singular.

Comment [A2]: In academic writing, information is presented with accuracy and conciseness. Formal language is a hallmark of academic English. One way to ensure conciseness in expression is converting phrasal verbs to formal words. In this instance, "writing" is replaced with "expressing."

Comment [A3]: In American English, place a comma after the Latin abbreviations i.e. and e.g.

Comment [A4]: Use a multiplication sign (\times) instead of the letter x at such instances. Note that a space should be inserted before and after the sign.

Comment [A5]: A semicolon is stronger than a comma and weaker than a period. When two independent sentences are closely connected in meaning and no coordinating conjunction is present, a semicolon can be used.

Comment [A6]: To preserve meaning that might otherwise be lost, some words that have to be hyphenated.