**From Linear isotropic elasticity theory:**

**Navier–Cauchy Equation :**

**Stress Tensor :**

**Strain Tensor:**

**Lamé Parameters :**

1. **Displacement Components (We define it):**

**First Derivatives:**

**Second Derivatives:**

**Strain Tensor Components:**

1. **Stress Components:**

**Derivation of fx:**

1. **Force Expression: From Navier–Cauchy Equation we find,**
2. **Evaluate Derivatives of Stress:**

With Example Values (λ=1.0,μ=0.5),

**alternatively split into two terms with coefficients separated:**

**Derivation of fy:**

* Strain Tensor Components:
* Stress tensor components:
* Compute derivatives:

So,

Expression for fy:

Simplifying results in: