

23a. Basis quantity, part i)a)

In[*]:=

```
Clear[m0sub]
m0sub[jj_] := {m0[j_] => m0[jj] - (eps / 3) (j - jj)}
```

In[*]:= Clear[bq]

```
bq[j_, nu_] := 2 m0[j] + eps j - nu
```

Check non-negativity if $m_0[j_r] \geq 0$ and $\varepsilon = 1$

In[*]:= bq[jr, nur] /. eps -> 1

```
bq[jp, nup] /. m0sub[jr] //. sub2r /. eps -> 1 // Simplify
```

```
bq[jl, nul] /. m0sub[jr] /. sub2p /. sub2r /. eps -> 1 // Simplify
```

Out[*]:= jr - nur + 2 m0[jr]

Out[*]:= 2 m0[jr]

Out[*]:= 2 m0[jr]

Check non-negativity if $m_0[j_l] \geq 0$ and $\varepsilon = -1$

In[*]:= bq[jl, nul] /. eps -> -1

```
bq[jp, nup] /. m0sub[jl] //. sub2l /. eps -> -1 // Simplify
```

```
bq[jr, nur] /. m0sub[jl] //. sub2p /. sub2l /. eps -> -1 // Simplify
```

Out[*]:= -jl - nul + 2 m0[jl]

Out[*]:= 2 m0[jl]

Out[*]:= 2 m0[jl]