In[2622]:=
```
Text[Row[{" dt error for all Fnn"}]]
FnGdt = -3 (k w) dt^2 / (2 (3 + H^2 k^2))
```

Out[2622]= dt error for all Fnn

Out[2623]= $-\frac{3\,dt^2\,k\,w}{2\left(3+H^2\,k^2\right)}$

In[2624]:=
```
Text[Row[{" -Sqrt[g*H] < U < Sqrt[g*H]  "}]]
FnG1FDdxdt = i (6 k^3 + H^2 k^5) dt / (4 (3 + H^2 k^2)^2) dx^2
Text[Row[{" U > Sqrt[g*H]  "}]]
FnG1FDdxdt1 = i (6 k^3 + H^2 k^5) dt / (4 (3 + H^2 k^2)^2) dx^2
Text[Row[{" U< -Sqrt[g*H] "}]]
FnG1FDdxdt2 = i (6 k^3 + H^2 k^5) dt / (4 (3 + H^2 k^2)^2) dx^2
```

Out[2624]= $-\text{Sqrt}[g*H] < U < \text{Sqrt}[g*H]$

Out[2625]= $\frac{i\,dt\,dx^2\left(6\,k^3+H^2\,k^5\right)}{4\left(3+H^2\,k^2\right)^2}$

Out[2626]= $U > \text{Sqrt}[g*H]$

Out[2627]= $\frac{i\,dt\,dx^2\left(6\,k^3+H^2\,k^5\right)}{4\left(3+H^2\,k^2\right)^2}$

Out[2628]= $U< -\text{Sqrt}[g*H]$

Out[2629]= $\frac{i\,dt\,dx^2\left(6\,k^3+H^2\,k^5\right)}{4\left(3+H^2\,k^2\right)^2}$

In[2630]:=
```
Text[Row[{" -Sqrt[g*H] < U < Sqrt[g*H]  "}]]
FnG2FDdxdt = (i (6 k^3 + H^2 k^5) dt)/(4 (3 + H^2 k^2)^2) dx^2
Text[Row[{" U > Sqrt[g*H]  "}]]
FnG2FDdxdt1 = (i (6 k^3 + H^2 k^5) dt)/(4 (3 + H^2 k^2)^2) dx^2
Text[Row[{" U< -Sqrt[g*H] "}]]
FnG2FDdxdt2 = (i (6 k^3 + H^2 k^5) dt)/(4 (3 + H^2 k^2)^2) dx^2
```

Out[2630]= $-\text{Sqrt}[g*H] < U < \text{Sqrt}[g*H]$

Out[2631]= $\frac{i\ dt\ dx^2\ \left(6\ k^3 + H^2\ k^5\right)}{4\ \left(3 + H^2\ k^2\right)^2}$

Out[2632]= $U > \text{Sqrt}[g*H]$

Out[2633]= $\frac{i\ dt\ dx^2\ \left(6\ k^3 + H^2\ k^5\right)}{4\ \left(3 + H^2\ k^2\right)^2}$

Out[2634]= $U < -\text{Sqrt}[g*H]$

Out[2635]= $\frac{i\ dt\ dx^2\ \left(6\ k^3 + H^2\ k^5\right)}{4\ \left(3 + H^2\ k^2\right)^2}$

In[2636]:=

```
Text[Row[{" -Sqrt[g*H] < U < Sqrt[g*H]  "}]]
FnG2FEMdxdt = -(i (12 k^3 + 5 H^2 k^5) dt)/(40 (3 + H^2 k^2)^2) dx^2
Text[Row[{" U > Sqrt[g*H]  "}]]
FnG2FEMdxdt1 = -(i (12 k^3 + 5 H^2 k^5) dt)/(40 (3 + H^2 k^2)^2) dx^2
Text[Row[{" U< -Sqrt[g*H] "}]]
FnG2FEMdxdt2 = -(i (12 k^3 + 5 H^2 k^5) dt)/(40 (3 + H^2 k^2)^2) dx^2
```

Out[2636]= $-\text{Sqrt}[g*H] < U < \text{Sqrt}[g*H]$

Out[2637]= $-\frac{i\, dt\, dx^2 \left(12\, k^3 + 5\, H^2\, k^5\right)}{40 \left(3 + H^2\, k^2\right)^2}$

Out[2638]= $U > \text{Sqrt}[g*H]$

Out[2639]= $-\frac{i\, dt\, dx^2 \left(12\, k^3 + 5\, H^2\, k^5\right)}{40 \left(3 + H^2\, k^2\right)^2}$

Out[2640]= $U < -\text{Sqrt}[g*H]$

Out[2641]= $-\frac{i\, dt\, dx^2 \left(12\, k^3 + 5\, H^2\, k^5\right)}{40 \left(3 + H^2\, k^2\right)^2}$

In[2642]:=

```
Text[Row[{" -Sqrt[g*H] < U < Sqrt[g*H]  "}]]
FnG3FDdxdt = i (243 k^5 + 49 H^2 k^7) dt / (960 (3 + H^2 k^2)^2) dx^4
Text[Row[{" U > Sqrt[g*H]  "}]]
FnG3FDdxdt1 = i (243 k^5 + 49 H^2 k^7) dt / (960 (3 + H^2 k^2)^2) dx^4
Text[Row[{" U< -Sqrt[g*H] "}]]
FnG3FDdxdt2 = i (243 k^5 + 49 H^2 k^7) dt / (960 (3 + H^2 k^2)^2) dx^4
```

Out[2642]= $-\text{Sqrt}[g*H] < U < \text{Sqrt}[g*H]$

Out[2643]= $\frac{i\, dt\, dx^4 \left(243\, k^5 + 49\, H^2\, k^7\right)}{960 \left(3 + H^2\, k^2\right)^2}$

Out[2644]= $U > \text{Sqrt}[g*H]$

Out[2645]= $\frac{i\, dt\, dx^4 \left(243\, k^5 + 49\, H^2\, k^7\right)}{960 \left(3 + H^2\, k^2\right)^2}$

Out[2646]= $U < -\text{Sqrt}[g*H]$

Out[2647]= $\frac{i\, dt\, dx^4 \left(243\, k^5 + 49\, H^2\, k^7\right)}{960 \left(3 + H^2\, k^2\right)^2}$

In[2648]:=