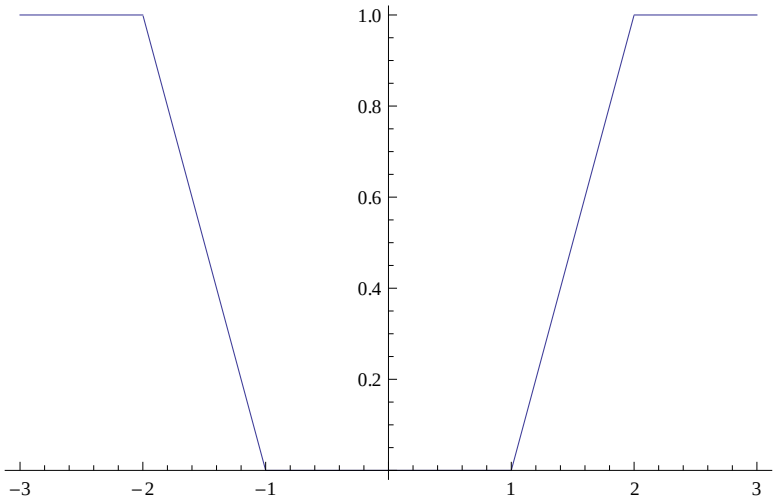
In[1]:=
```
u[x_, t_] := (1 / 2) (G[x + t] - G[x - t])
```

In[2]:=
```
G[z_] =
 Piecewise[{{1, z < -2}, {-z - 1, -2 < z < -1}, {0, -1 < z < 1}, {z - 1, 1 < z < 2}, {1, z > 2}}]
```

Out[2]=
$$\begin{cases} 1 & z < -2 \\ -1 - z & -2 < z < -1 \\ 0 & -1 < z < 1 \\ -1 + z & 1 < z < 2 \\ 1 & z > 2 \\ 0 & \text{True} \end{cases}$$

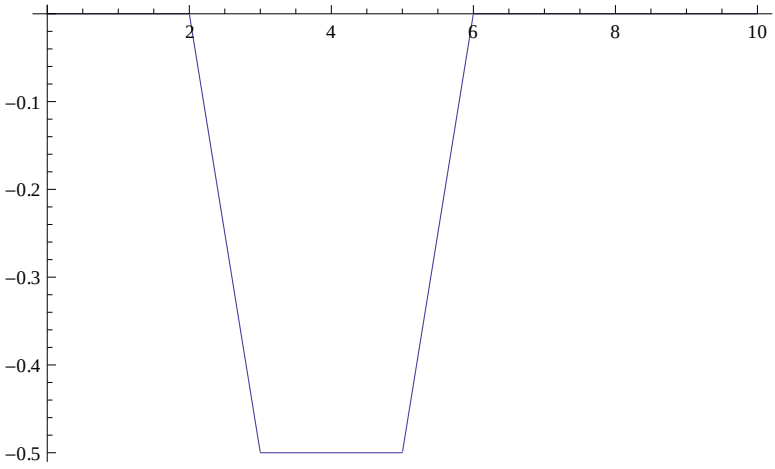
In[3]:=
```
Plot[G[z], {z, -3, 3}]
```

Out[3]=



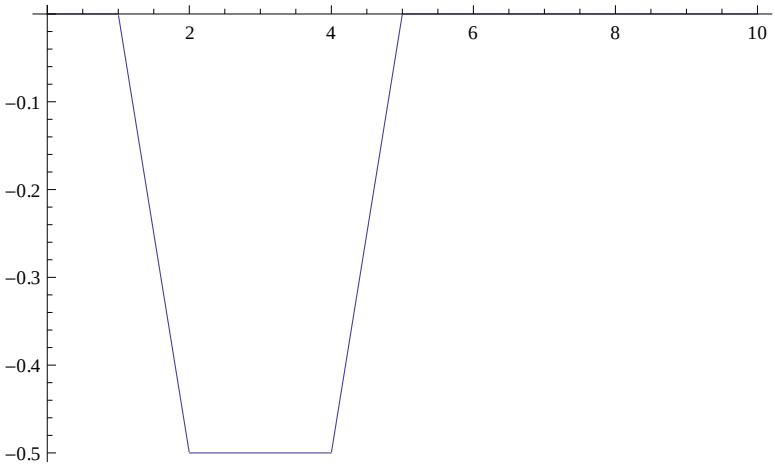
In[4]:=
```
Plot[u[x, -4], {x, 0, 10}]
```

Out[4]=



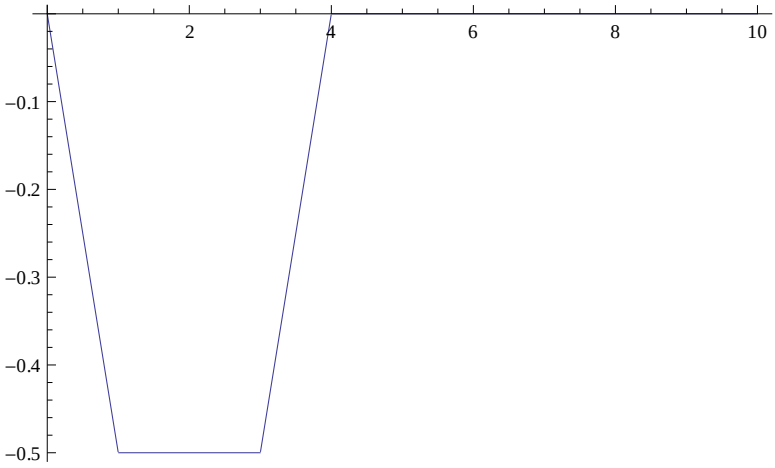
In[5]:=
```
Plot[u[x, -3], {x, 0, 10}]
```

Out[5]=



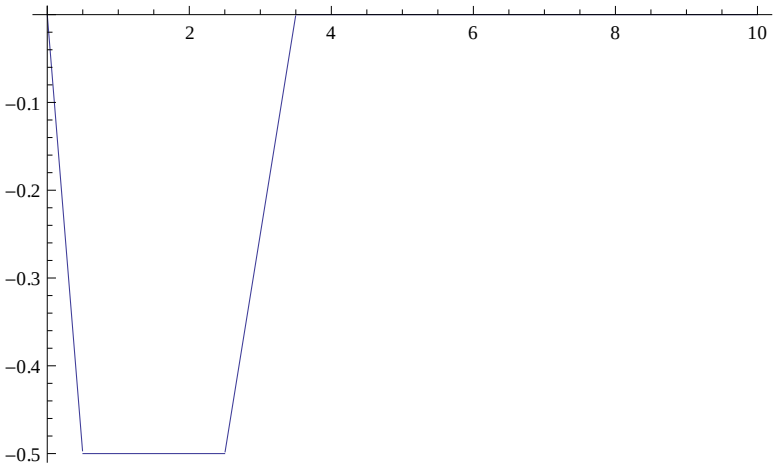
In[6]:=
```
Plot[u[x, -2], {x, 0, 10}]
```

Out[6]=



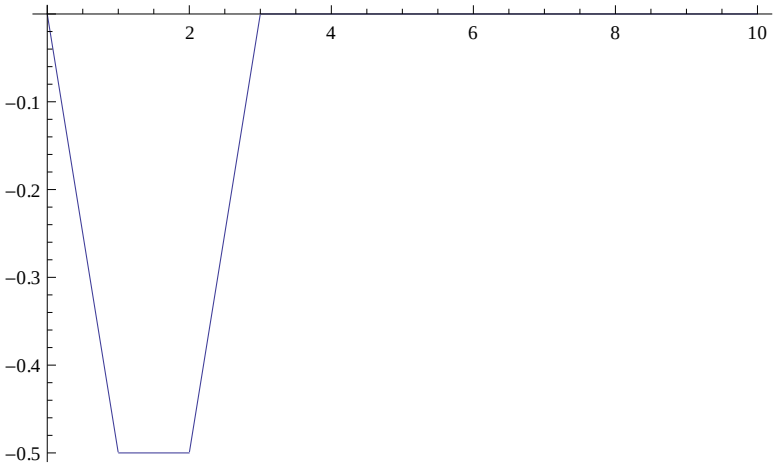
In[7]:=
```
Plot[u[x, -1.5], {x, 0, 10}]
```

Out[7]=



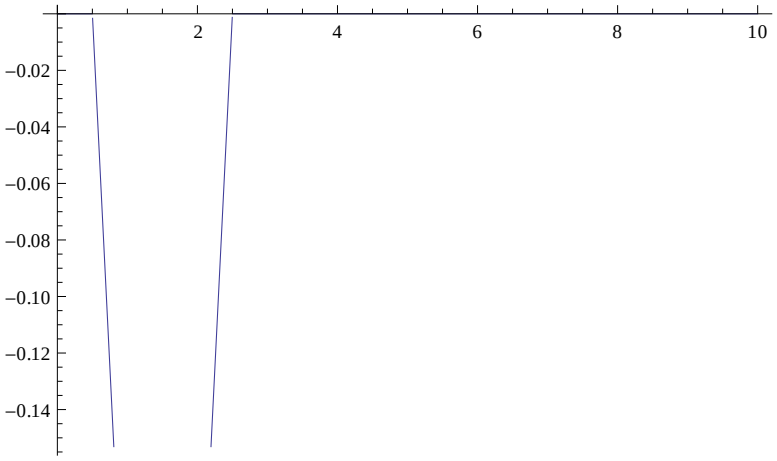
In[8]:=
```
Plot[u[x, -1], {x, 0, 10}]
```

Out[8]=



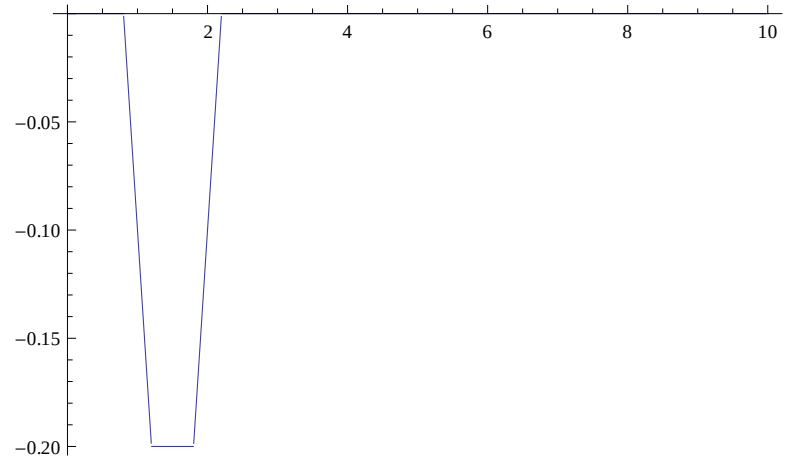
In[9]:=
```
Plot[u[x, -0.5], {x, 0, 10}]
```

Out[9]=



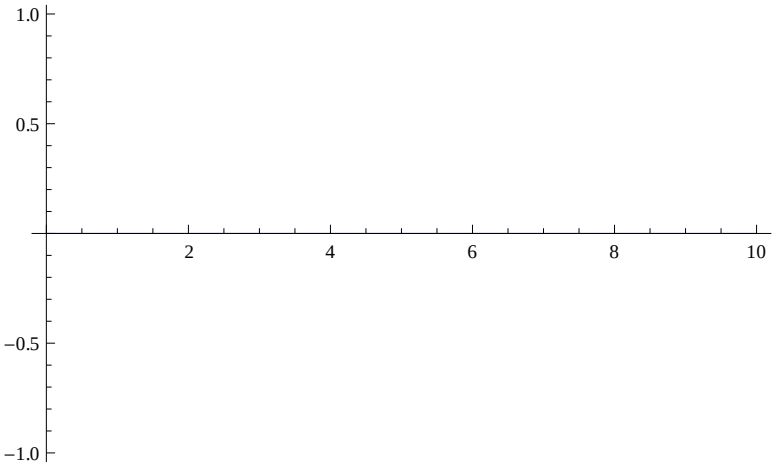
In[10]:=
```
Plot[u[x, -0.2], {x, 0, 10}]
```

Out[10]=



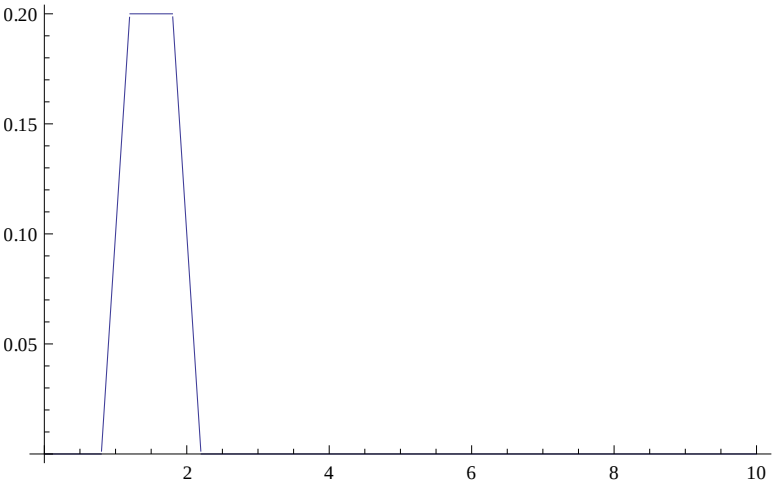
In[11]:=
```
Plot[u[x, 0], {x, 0, 10}]
```

Out[11]=



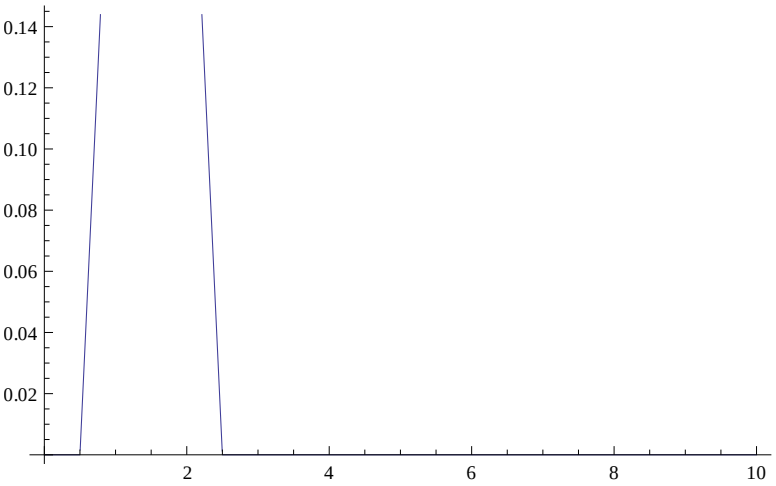
In[12]:=
```
Plot[u[x, 0.2], {x, 0, 10}]
```

Out[12]=



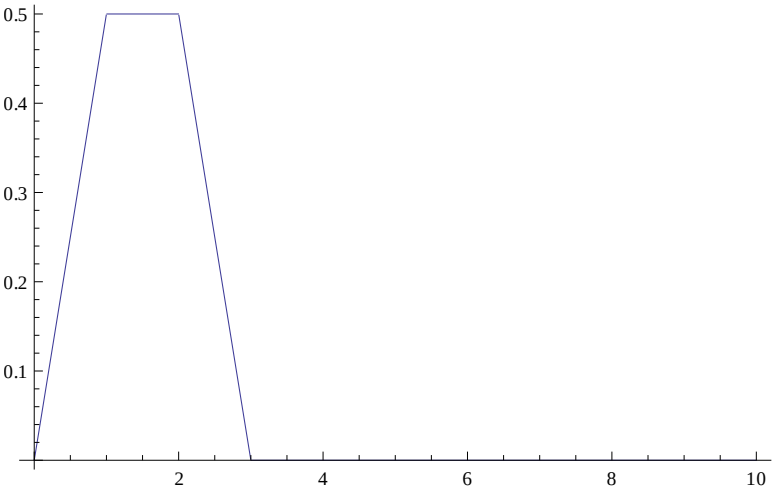
In[13]:=
```
Plot[u[x, 0.5], {x, 0, 10}]
```

Out[13]=



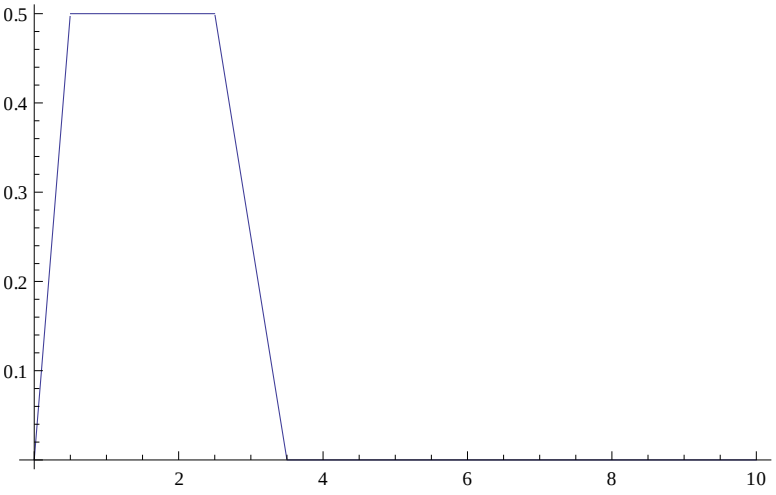
In[14]:=
```
Plot[u[x, 1], {x, 0, 10}]
```

Out[14]=



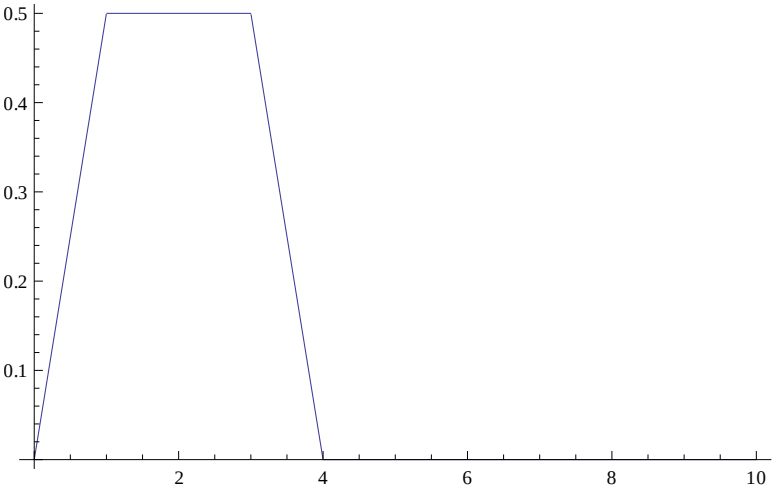
In[15]:=
```
Plot[u[x, 1.5], {x, 0, 10}]
```

Out[15]=



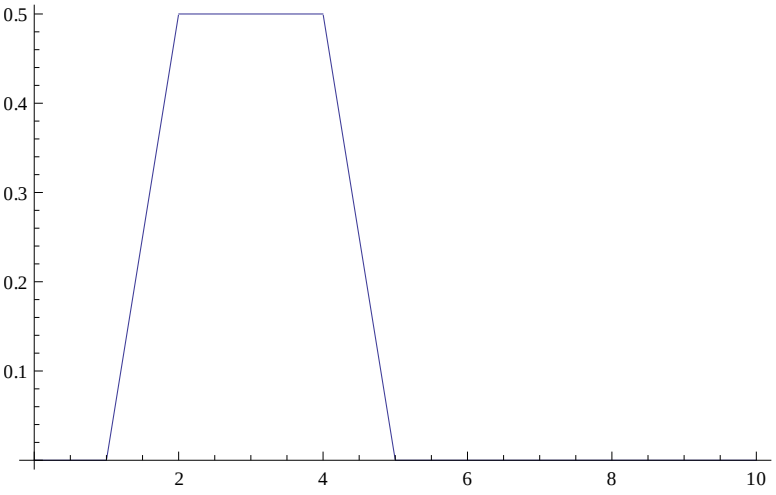
In[16]:=
```
Plot[u[x, 2], {x, 0, 10}]
```

Out[16]=



In[17]:=
```
Plot[u[x, 3], {x, 0, 10}]
```

Out[17]=



In[18]:=
```
Plot[u[x, 4], {x, 0, 10}]
```

Out[18]=