

```
u[x_, y_] := -(2*(a1 + a3*y + k*(e^(k*(x - x0)) - e^(-k*(x - x0))))*cos[k*y])/(R*(a0 + a1*x + a2*y + a3*x*y + (e^(-k*(x - x0)) + e^(k*(x - x0)))*cos[k*y]))
u = u[x, y]


$$-\frac{2(a_1 + a_3 y + (-e^{-k(x-x_0)} + e^{k(x-x_0)})k \cos[k y])}{R(a_0 + a_1 x + a_2 y + a_3 x y + (e^{-k(x-x_0)} + e^{k(x-x_0)}) \cos[k y])}$$


v[x_, y_] := -(2*(a2 + a3*x - k*(e^(-k*(x - x0)) + e^(k*(x - x0)))*sin[k*y]))/(R*(a0 + a1*x + a2*y + a3*x*y + (e^(-k*(x - x0)) + e^(k*(x - x0)))*cos[k*y]))
v = v[x, y]


$$-\frac{2(a_2 + a_3 x - (e^{-k(x-x_0)} + e^{k(x-x_0)})k \sin[k y])}{R(a_0 + a_1 x + a_2 y + a_3 x y + (e^{-k(x-x_0)} + e^{k(x-x_0)}) \cos[k y])}$$


x1 = D[v, x]*u + D[v, y]*v
x2 = (D[v, {x, 2}] + D[v, {y, 2}])/R
simplify(x1 - x2)
0
```