

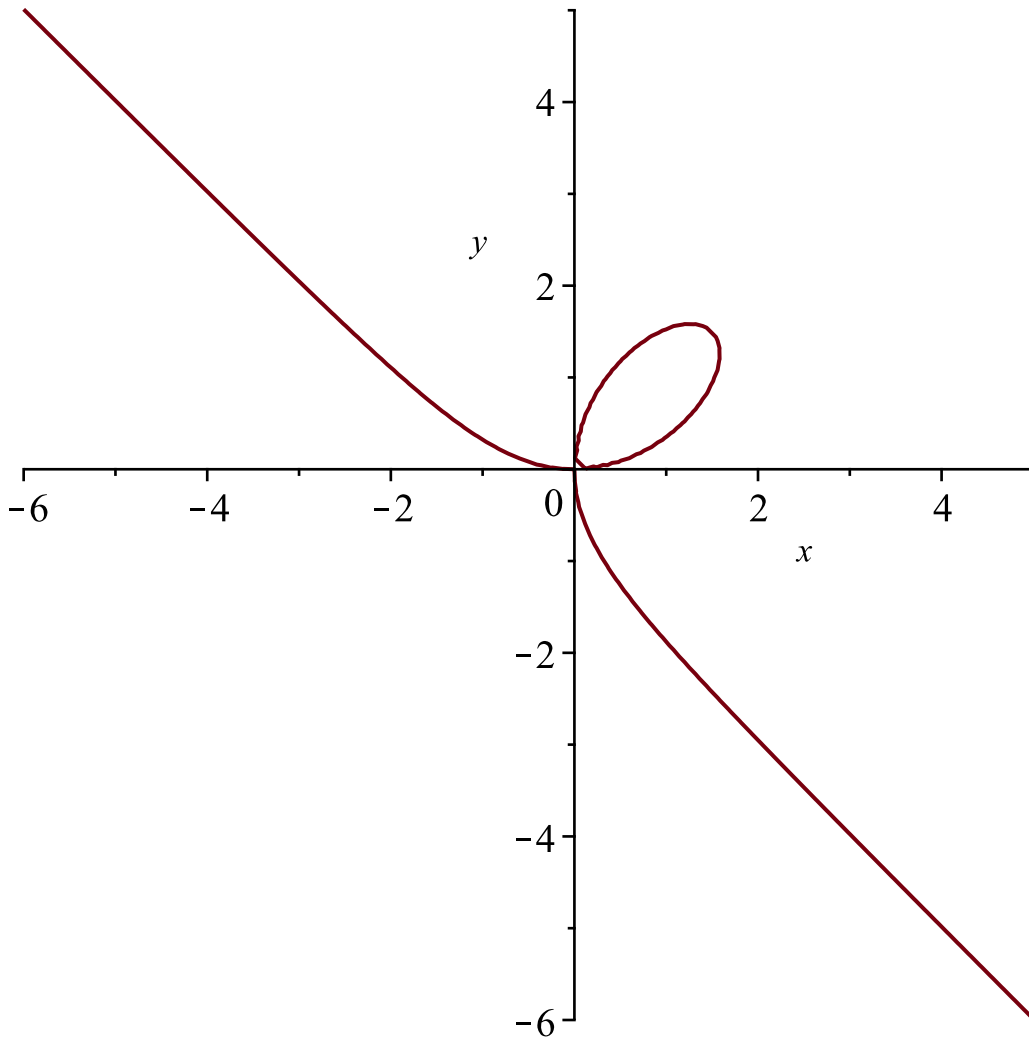
with(plots) :

$$\text{eqn1} := x^3 + y^3 = 3 \cdot x \cdot y$$

$$\text{eqn1} := x^3 + y^3 = 3xy$$

plot1 := implicitplot(eqn1, x=-6..6, y=-6..6, numpoints = 10000)

(1)



$$\text{eqn2} := y^3 - 3 \cdot y + 1$$

$$\text{eqn2} := y^3 - 3y + 1$$

(2)

solve(eqn2, y)

$$\frac{(-4 + 4I\sqrt{3})^{1/3}}{2} + \frac{2}{(-4 + 4I\sqrt{3})^{1/3}}, -\frac{(-4 + 4I\sqrt{3})^{1/3}}{4} - \frac{1}{(-4 + 4I\sqrt{3})^{1/3}}$$
$$+ \frac{I\sqrt{3} \left( \frac{(-4 + 4I\sqrt{3})^{1/3}}{2} - \frac{2}{(-4 + 4I\sqrt{3})^{1/3}} \right)}{2}, -\frac{(-4 + 4I\sqrt{3})^{1/3}}{4}$$

(3)

$$-\frac{1}{(-4 + 4I\sqrt{3})^{1/3}} - \frac{I\sqrt{3} \left( \frac{(-4 + 4I\sqrt{3})^{1/3}}{2} - \frac{2}{(-4 + 4I\sqrt{3})^{1/3}} \right)}{2}$$

*evalf*(%)

$$1.532088886 - 1.10^{-10} I, -1.879385241 - 1.732050808 \cdot 10^{-10} I, 0.3472963549 + 1.732050808 \cdot 10^{-10} I \quad (4)$$

$$yp := (x, y) \rightarrow \frac{(3 \cdot y - 3 \cdot x^2)}{-3 \cdot x + 3 \cdot y^2}$$

$$yp := (x, y) \mapsto \frac{3y - 3x^2}{-3x + 3y^2} \quad (5)$$

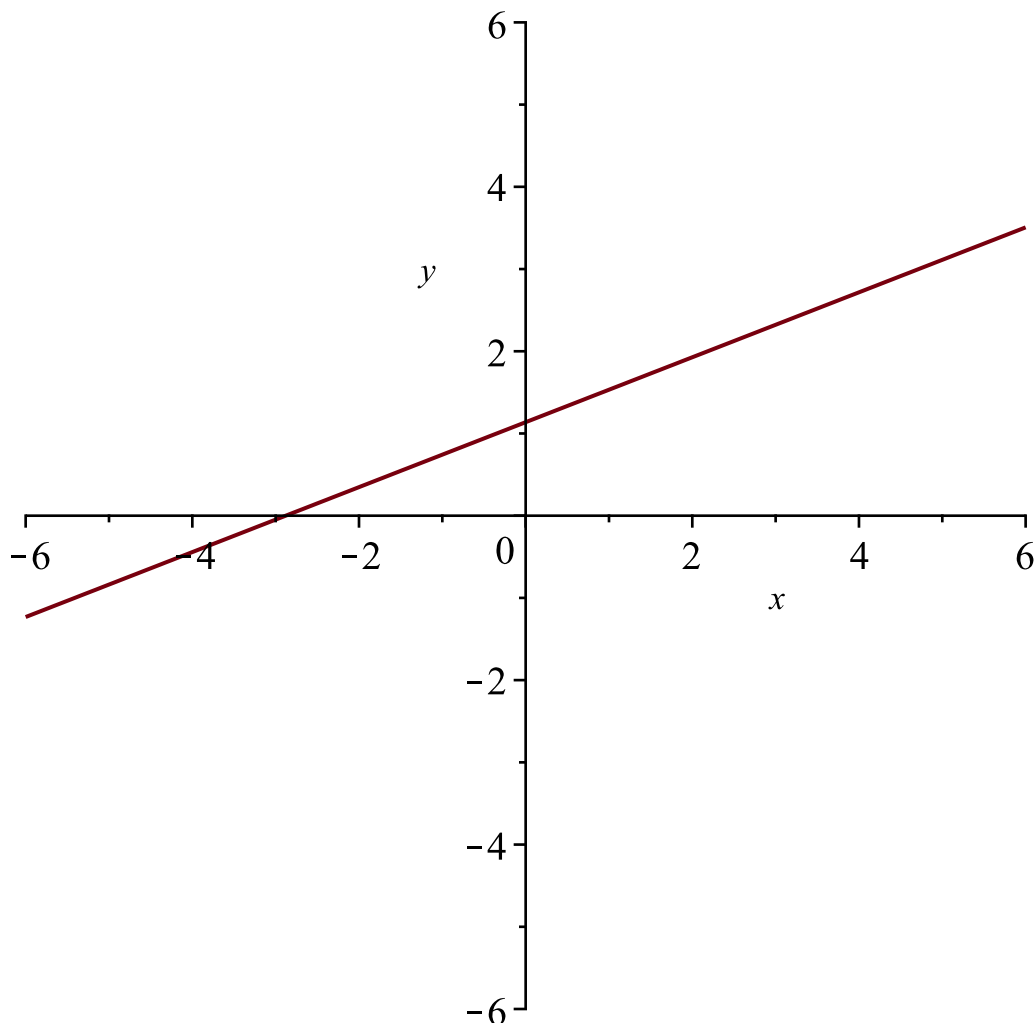
*yp*(1, 1.532088886)

$$0.3949308436 \quad (6)$$

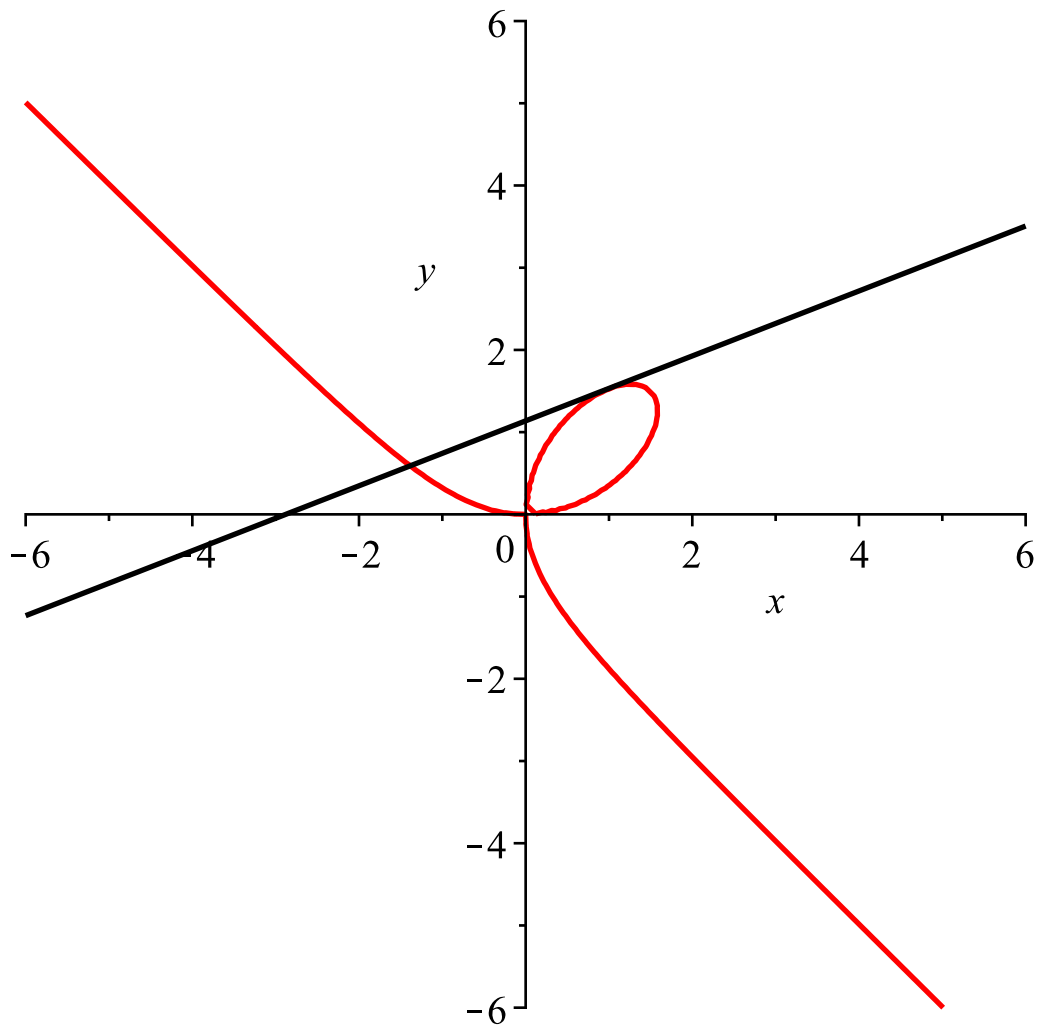
*L* := *x* → 0.3949308436 · (*x* - 1) + 1.532088886

$$L := x \mapsto 0.3949308436 (x - 1) + 1.532088886 \quad (7)$$

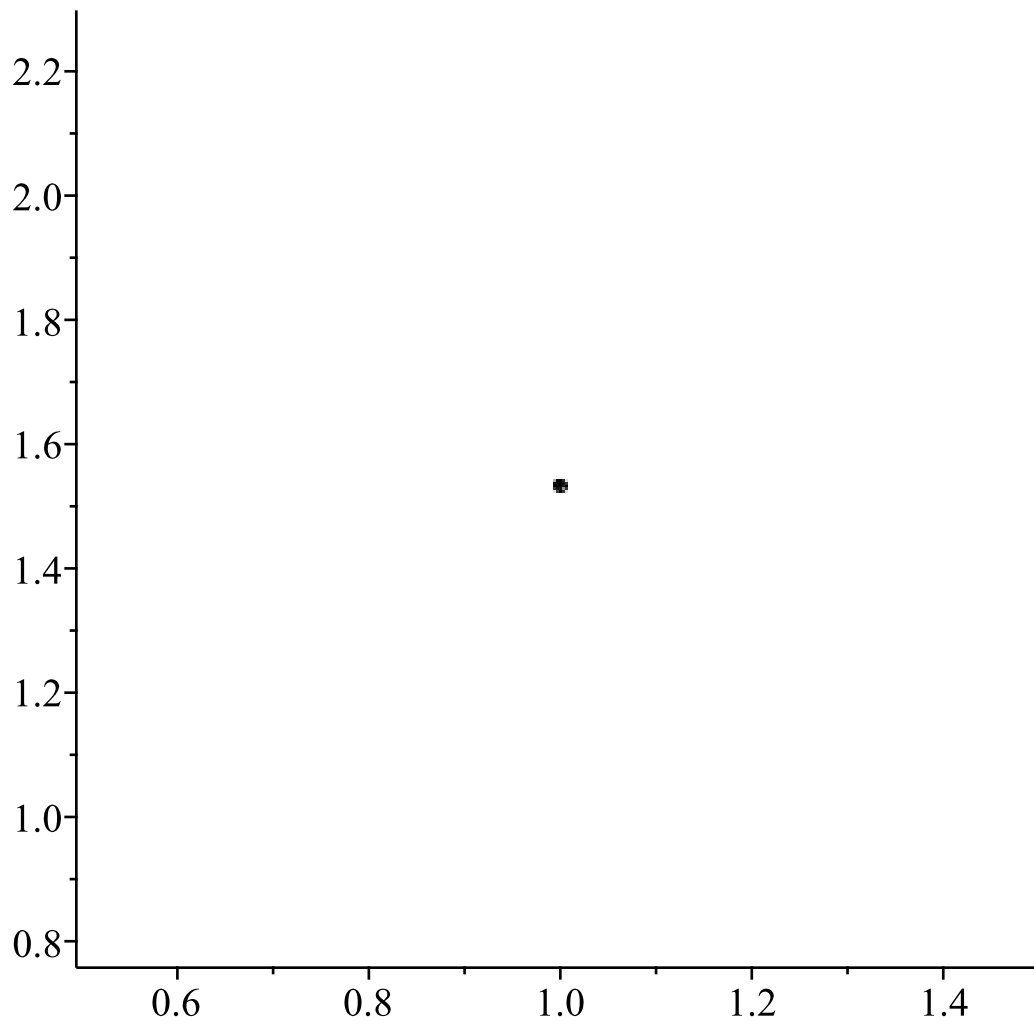
*plot2* := *plot*(*L*(*x*), *x* = -6..6, *y* = -6..6)



*display*( [*plot1*, *plot2*], *color* = [red, black], *thickness* = [2, 2])



`plot3 := pointplot([1, 1.532088886], symbol=solidcircle, symbolsize=10)`



*display([plot1, plot2, plot3])*

