#lab1
#sollutions by Goian Tudor
#ex3

$$factor(x^8 - 1)$$

$$(x-1)\,(x+1)\,(x^2+1)\,(x^4+1) \quad \textbf{(1)}$$

#ex7

$$solve(x^2 - 4\cdot x + 3 = 0, x)$$

$$3,\ 1 \quad \textbf{(2)}$$

$$solve(x^2\cdot y + 2\cdot y - x, x)$$

$$\frac{1+\sqrt{-8\,y^2+1}}{2\,y},\ -\frac{-1+\sqrt{-8\,y^2+1}}{2\,y} \quad \textbf{(3)}$$

$$solve(x^2\cdot y + 2\cdot y - x, y)$$

$$\frac{x}{x^2+2} \quad \textbf{(4)}$$

$$solve(x - \cos(x) = 0, x)$$

$$RootOf(\_Z - \cos(\_Z)) \quad \textbf{(5)}$$

$$solve(x^5 - 3\cdot x^3 - 1 = 0, x)$$

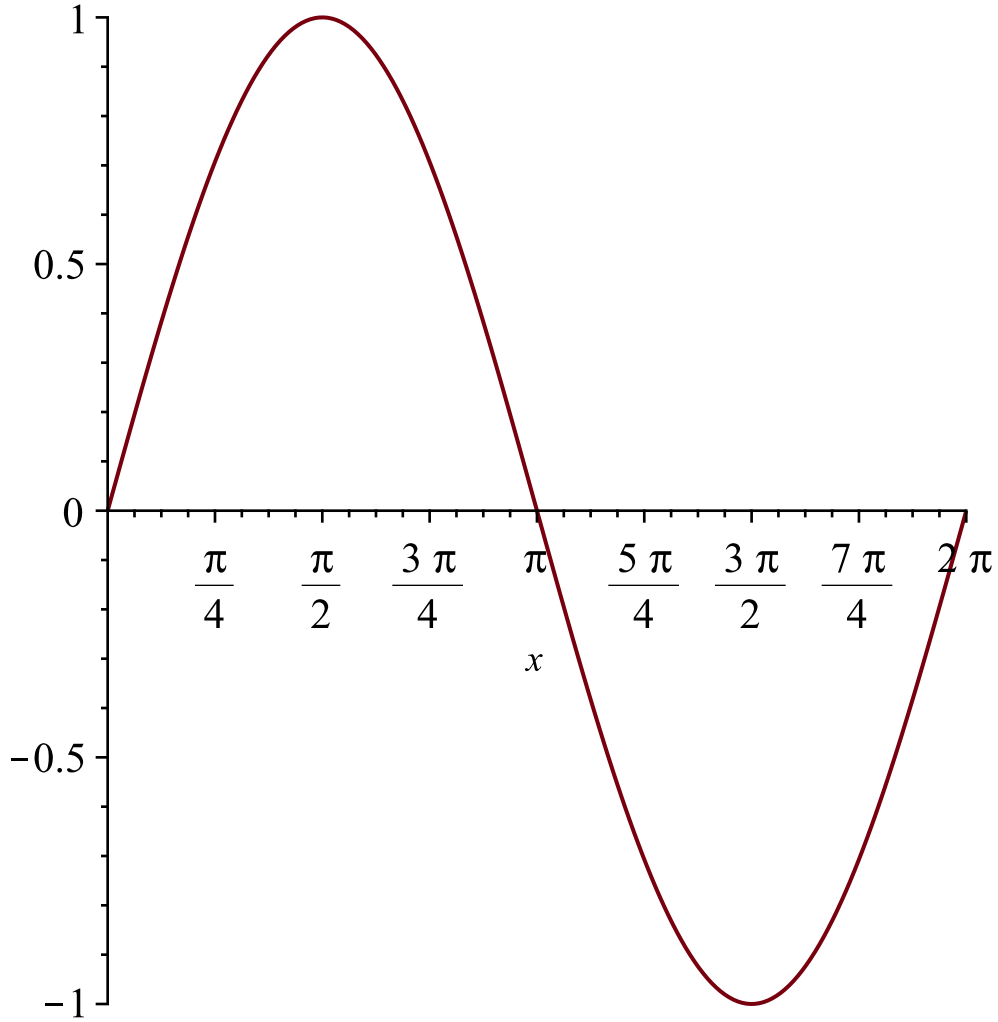
$$RootOf(\_Z^5 - 3\,\_Z^3 - 1, index=1),\ RootOf(\_Z^5 - 3\,\_Z^3 - 1, index=2),\ RootOf(\_Z^5 - 3\,\_Z^3 - 1, index=3),\ RootOf(\_Z^5 - 3\,\_Z^3 - 1, index=4),\ RootOf(\_Z^5 - 3\,\_Z^3 - 1, index=5) \quad \textbf{(6)}$$

$$solve(\{4\,x + 3\,y = 10,\ 3\,x - y = 1\},\ \{x, y\})$$

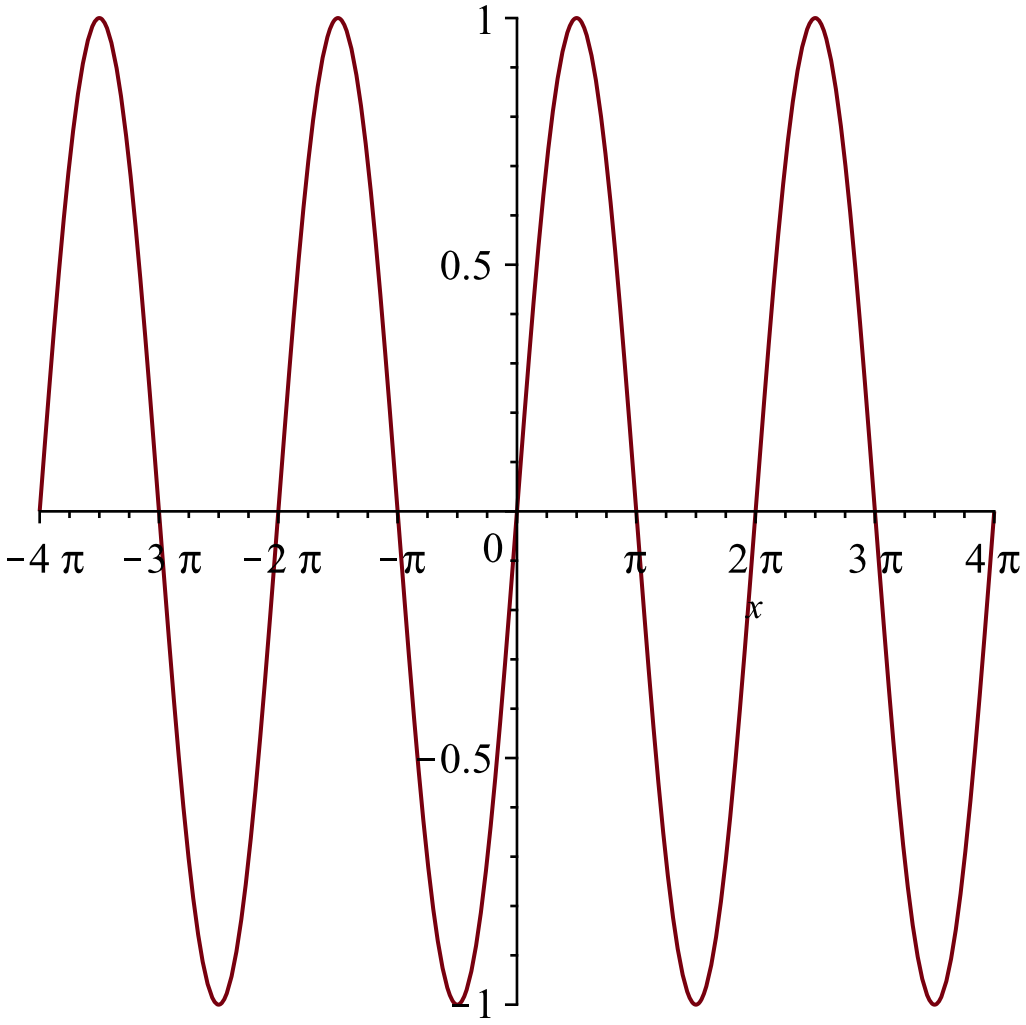
$$\{x=1,\ y=2\} \quad \textbf{(7)}$$

#ex11

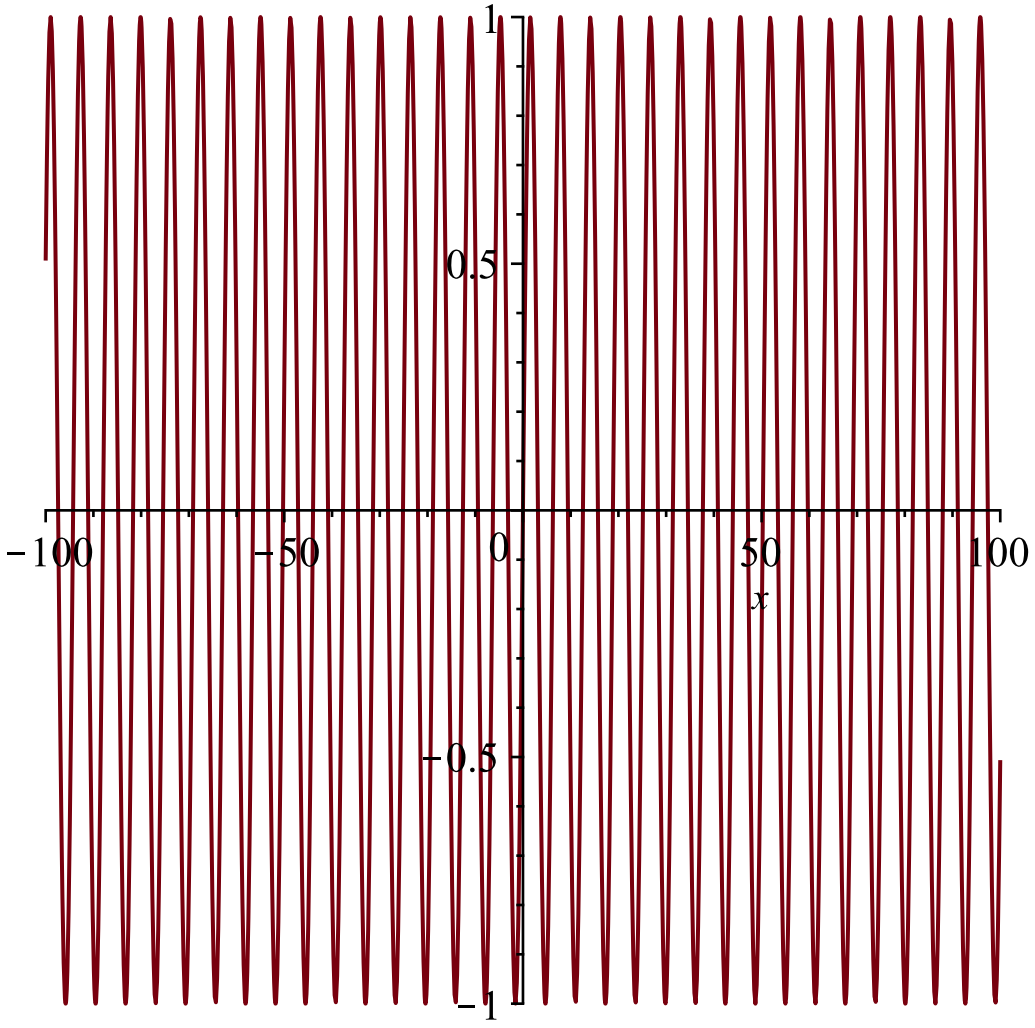
$$plot(\sin(x), x = 0..2\cdot Pi)$$



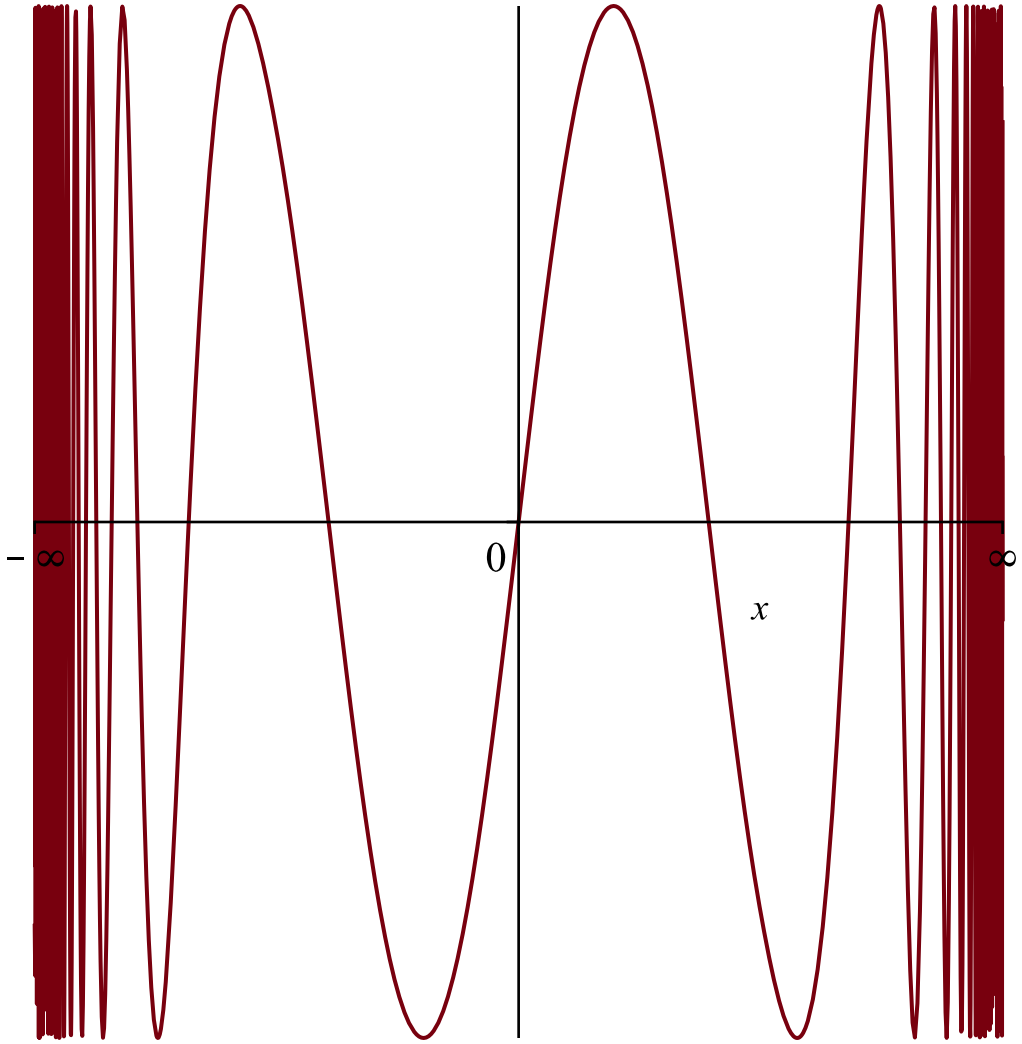
$plot(\sin(x), x = -4 \cdot \mathrm{Pi} .. 4 \cdot \mathrm{Pi})$



$plot(\sin(x), x = -100..100)$

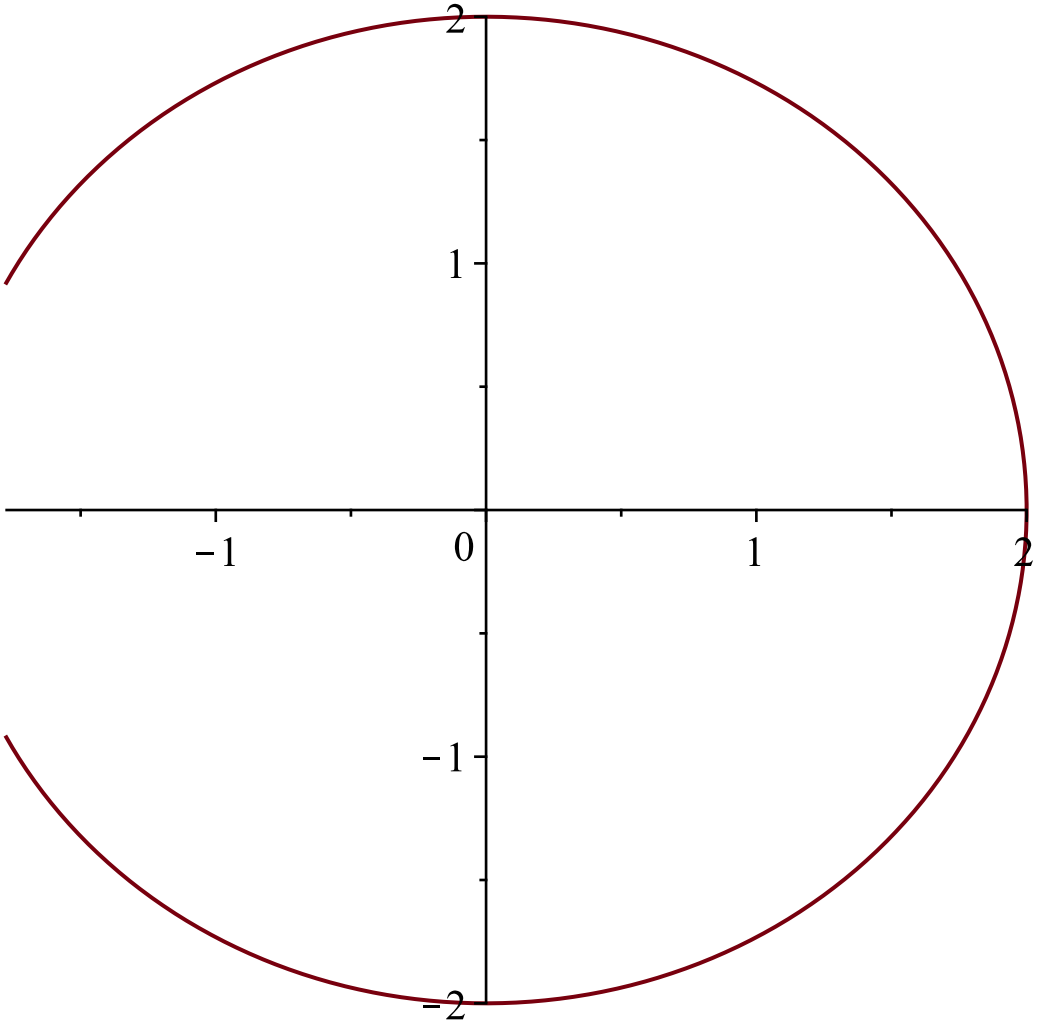


$plot(\sin(x), x = -\text{infinity}..\text{infinity})$

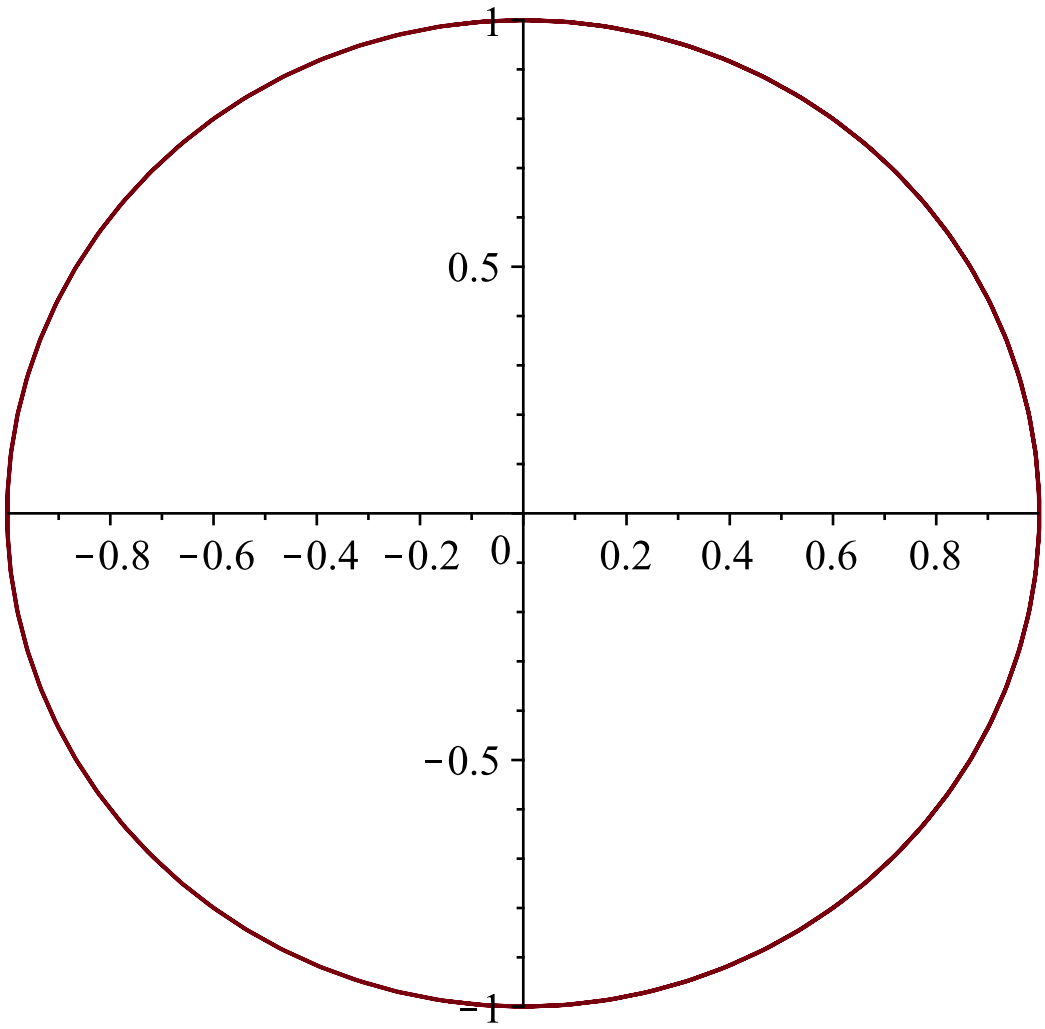

−∞
0
∞
x

#ex15

$$plot\left(\left[2\cdot\cos\left(\frac{t}{3}\right), 2\cdot\sin\left(\frac{t}{3}\right), t=-8..8\right]\right)$$



$$plot([\cos(4\cdot t), \sin(4\cdot t), t=-2..2])$$

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#ex17
with(plots):
implicitplot(x^2 - 2·x·y - y^2 = 1, x = -50..50, y = -50..50)
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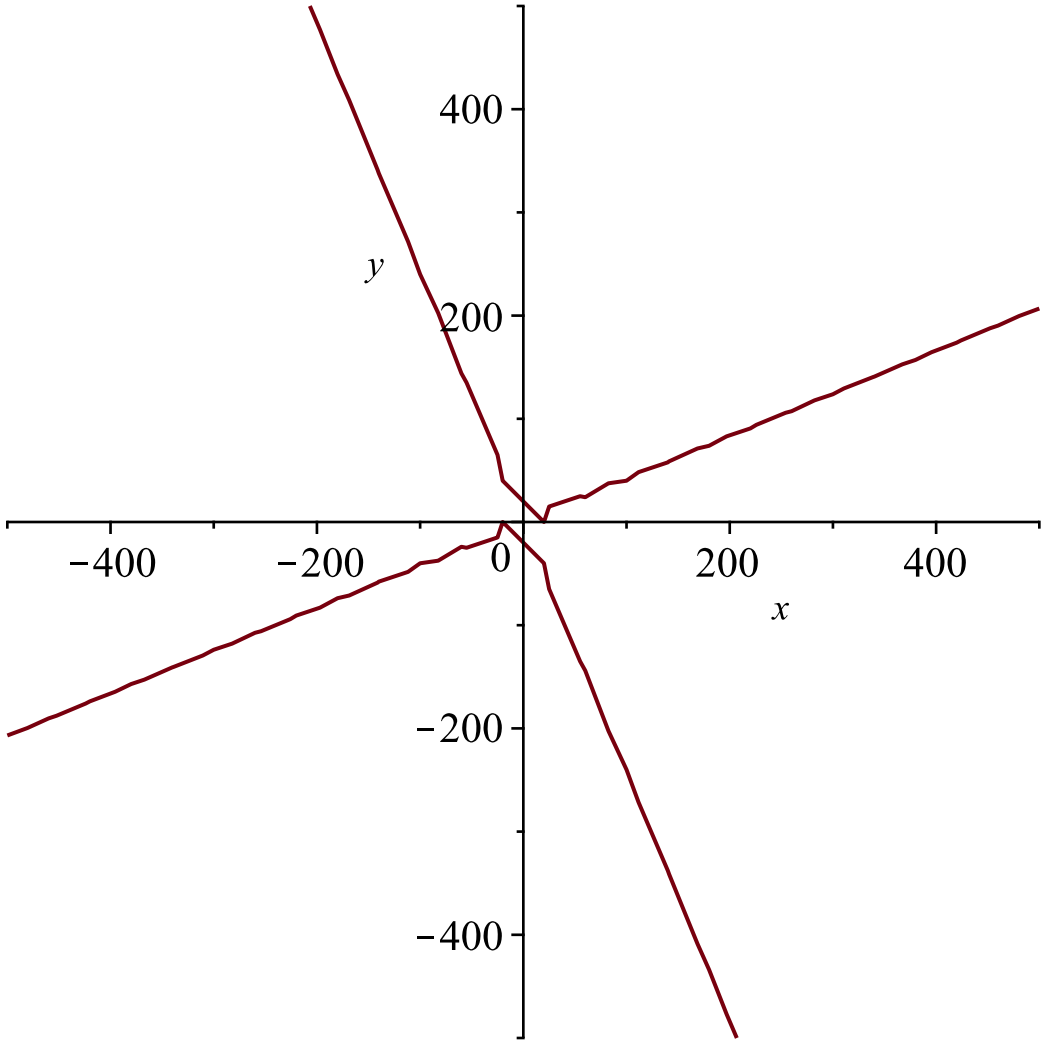
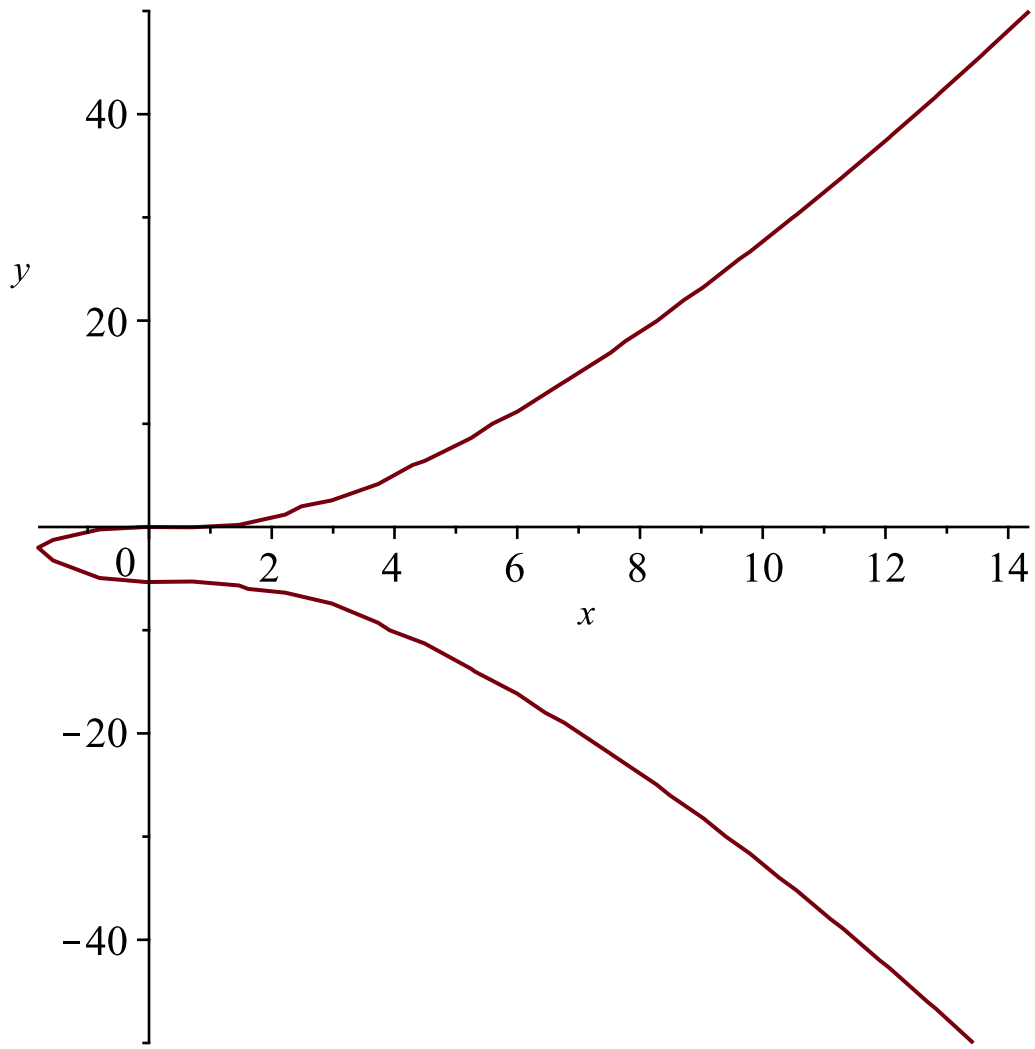


$implicitplot(x^3 - y^2 - 5y - x^2 = -4, x = -50..50, y = -50..50)$


40
20
y
0
2
4
6
8
10
12
14
x
-20
-40