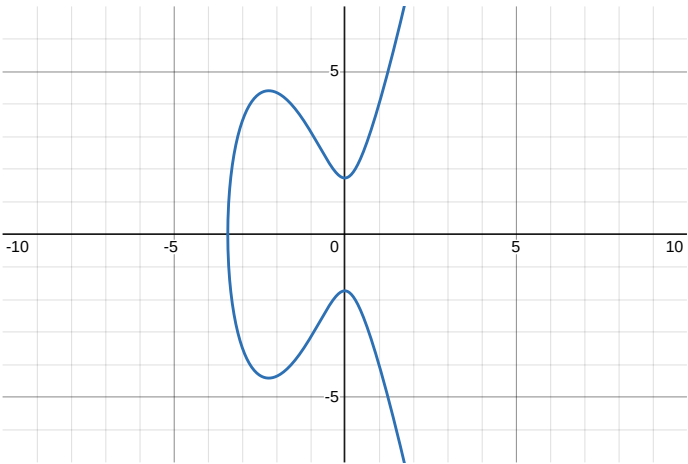


This note, that [was found here](#), as a part of [a collection](#) is written (completely with human hands) by [Rupadarshi Ray](#), was created on May 2, 2026 5:57:56 PM, was last modified on September 5, 2026 1:38:19 PM, and was exported on September 7, 2026 2:50:35 PM.

$$3X^3 + 10X^2 + 3 - Y^2$$



```
from sage.all import *

R = PolynomialRing(QQ, 'x')
x = R.gen()

f = 3*x**3 + 10*x**2 + 3

print("discriminant =", f.discriminant())
print("gcd(f, f') =", gcd(f, f.derivative()))

if f.discriminant() != 0:
    print("y^2 = f(x) defines an elliptic curve over Q.")
else:
    print("The curve is singular.")
```

```
discriminant = -14187
gcd(f, f') = 1
y^2 = f(x) defines an elliptic curve over Q.
```

Current note has 0 direct children and 0 total descendants.

- [squishy](#)
 - [Polynomials](#)
 - $3X^3 + 10X^2 + 3 - Y^2$

And it has 17 siblings.

- [squishy](#)
 - [Polynomials](#)
 - $X^n + Y^n = Z^n$
 - $8X^3 + 4X^2 - 4X - 1$
 - $x^2 + y^2 - 3$
 - [Folium of Descartes](#)
 - $X^3 + Y^3 - 3aXY$
 - $X^3 + Y^3 - a$
 - $3X^3 + 10X^2 + 3 - Y^2$
 - $3X^8 + 10X^4 + 3 - Y^2$
 - $XYZ - 1$
 - [Pythagorean triples](#)
 - [Bolza curve](#)
 - [Irreducible polynomials in \$\mathbb{C}\[x, y\]\$](#)
 - [Polynomial maps \$\mathbb{C}^n \rightarrow \mathbb{C}^n\$ of degree at most \$d\$](#)
 - [Chebyshev polynomials of the first kind](#)
 - [Logistic map](#)
 - [Dynamics of the map \$z^2 + c\$](#)
 - $\begin{pmatrix} x \\ y \\ y \end{pmatrix} \mapsto \begin{pmatrix} (1 + xy)^3 z + y^2(1 + xy)(4 + 3xy) \\ y + 3x(1 + xy)^2 z + 3xy^2(4 + 3xy) \\ 2x - 3x^2 y - x^3 z \end{pmatrix}$
 - $(w^2 - 1)^2$