

Find the gradient of $x^2 + xy - y^2 = 1$ at the point (1, 0).

Enter the implicit function,

Select the function and tap **Interactive**, **Calculate**, **impDiff**.

Check the settings are correct and tap **OK**.

An equation for the derivative is displayed.

0.5 1/2 Jdx Jdx4 Simp Jdx

$x^2 + xy - y^2 = 1$

$x^2 - y^2 + x \cdot y = 1$

Alg Standard Real Deg

0.5 1/2 Jdx Jdx4 Simp Jdx

$x^2 + xy - y^2 = 1$

- Transformation
- Advanced
- Calcula diff
- Complex impDiff
- List ∫
- Matrix lim
- Vector ∑
- Equatio ∏
- Assista rangeAppoint
- Distrib mod
- Financ line
- Define fMin/fMax
- gcd/lcm
- fraction

Alg Standard Real Deg

impDiff

Equation: $x^2 + xy - y^2 = 1$

Inde var: x

Depe var: y

OK Cancel

Math1 Line $\frac{\square}{\square}$ $\sqrt{\square}$ π \rightarrow

Math2 \square^\square e^\square ln \log_{\square} $\sqrt[\square]{\square}$

Math3 $|\square|$ x^2 x^{-1} $\log_{10}(\square)$ solve(

Trig $\square \square$ toDMS { } ()

Var sin cos tan ° *

abc \leftarrow \rightarrow ans EXE

Alg Standard Real Deg

0.5 1/2 Jdx Jdx4 Simp Jdx

impDiff($x^2 + xy - y^2 = 1, x, y$)

$y' = \frac{-(2 \cdot x + y)}{x - 2 \cdot y}$

Alg Standard Real Deg

Copy the right-hand side of the equation onto a new line.

Using the **Math3** keyboard, add the values for x and y .

The value of the derivative at this point is calculated.

Most implicit functions can be graphed in Main.

Edit Action Interactive
 $\text{impDiff}(x^2+x\cdot y-y^2=1, x, y)$

$$y' = \frac{-(2\cdot x+y)}{x-2\cdot y}$$

$$\frac{-(2\cdot x+y)}{x-2\cdot y} | x=1 | y=0$$
 -2

Math1: Line, $\frac{\square}{\square}$, $\sqrt{\square}$, π , \rightarrow
 Math2: Define, f, g, i, ∞
 Math3: solve(, dSlv, ', $\left\{ \begin{matrix} \square \\ \square \end{matrix} \right\}$, |
 Trig: <, >, (), { }, []
 Var: \leq , \geq , =, \neq , \angle
 abc: \leftarrow , \rightarrow , ans, EXE

Alg Standard Real Deg

Edit Zoom Analysis
 $\text{impDiff}(x^2+x\cdot y-y^2=1, x, y)$

$$y' = \frac{-(2\cdot x+y)}{x-2\cdot y}$$

$$\frac{-(2\cdot x+y)}{x-2\cdot y} | x=1 | y=0$$
 -2

Graph showing the implicit function $x^2+x\cdot y-y^2=1$ plotted on a coordinate plane. The x-axis ranges from -7 to 7, and the y-axis ranges from -4 to 4. The curve is a hyperbola-like shape opening to the right and left, with vertices at (1, 0) and (-1, 0).

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