

1

$$\frac{\partial}{\partial x} x^4 + 2x^2y^2 - 4x^2 + y^4 - 4y^3 =$$

$$4x^3 + 2(2xy + 2yx^2) - 4(2xy + x^2) - 8y + 4y^3 - 12y^2$$

$$= 0$$

Isolate

$$= \frac{x(x^2 + y^2 - 2y - 2)}{x^2y - x^2 + y^3 - 3y^2}$$


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2

$$\frac{\partial}{\partial y} \sin(x+y) = y^2$$

$$\cos(x+y) \left(1 + \frac{\partial}{\partial y}\right) = 2y$$

Isolate

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

$$\frac{\partial}{\partial x} y^4 = y^2 - x^2$$

$$4y^3 = 2y - 2x$$

$$\text{Integrate } \frac{x}{y(zy^2-1)}$$