

## PROBLEM

Consider the standard form for the unit circle  $x^2 + y^2 = 1$ . Find the first derivative  $\frac{dy}{dx}$  implicitly. What kind of geometric information does this provide?

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Consider the relation

$$x^2 y + xy^2 = 1. \text{ Find } \frac{dy}{dx}$$

by implicit differentiation.

## PROBLEM

Find  $\frac{dy}{dx}$  implicitly for the equation  $\sin y = x$ . At some point in your work, make use of the trigonometric identity  $\sin^2 \theta + \cos^2 \theta = 1$  in order to express  $\frac{dy}{dx}$  in terms of  $x$ .

You have just found the derivative of which important function?