

# The Sum is the Product

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Find all integer pairs having the property that sum of the two integers is equal to their product.

The problem was solved by

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Discussion:

We need  $x$  and  $y$  integers so that  $x + y = xy$ . Clearly, none of them can be

1. It is easy to see that

$$\frac{y}{y-1} = x$$

Thus,  $y - 1$  divides  $y$ . Therefore, only possible values of  $y$  are  $y = 0$  and  $y = 2$ .  
Hence the solutions are  $y = 2, x = 2$  and  $y = 0, x = 0$ .