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Problem:

Find the general solution of the differential equation:

$(1+x^2)dy - 2xydx = 0.$

Solution:

$(1+x^2)dy - 2xydx = 0 \Rightarrow (1+x^2)dy = 2xydx$, this is an equation with separable variables, $\Rightarrow$

$\frac{dy}{y} = \frac{2xdx}{1+x^2}$, let's integrate $\Rightarrow \int \frac{dy}{y} = \int \frac{2xdx}{1+x^2} = \int \frac{dx^2}{1+x^2} = \ln|1+x^2| + C_0 \Rightarrow \ln|y| = \ln|1+x^2| + C_0 \Rightarrow$

$|y| = e^{C_0} \cdot (1+x^2) \Rightarrow \boxed{y = C \cdot (1+x^2)}$ will be the desired general solution of the initial equation, where C is the arbitrary constant.

Answer: $y = C \cdot (1+x^2)$.