

Risp 30: How Many Differential Equations?

Pick four whole numbers, and call them a , b , c , and d .

Write down the expression $ax^2 - ax + b$.

This is **Expression 1**.

Differentiate Expression 1 with respect to x .

This gives **Expression 2**.

Expression 3 is $cy + d$.

Place Expressions **1**, **2** and **3** in the squares below in some order. **(No repeats!)**

$$\left(\square \right) \frac{dy}{dx} = \left(\square \right) \left(\square \right)$$

Find the general solution for each differential equation that you can make.

You are given the additional information that $(0, 0)$ lies on every solution.

Show that $(1, 0)$ also lies on every solution.