



# Differential Equations

## Quiz #6

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Name: \_\_\_\_\_

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**Question 1.** The set of solutions of  $X'(t) = A(t)X(t) + B(t)$ , where  $A : \mathbb{R} \rightarrow M_3(\mathbb{R})$  and  $B : \mathbb{R} \rightarrow \mathbb{R}^3$  are continuous maps,

- is a singleton ..... ☐
- has dimension 1 ..... ☐
- has dimension 3 ..... ☐
- is an affine space ..... ☐
- is a vector space ..... ☐

**Question 2.** Write the formula (even without learning it it should now be easy to find) giving the solution to the following problem:

$$X'(t) = A \cdot X(t), \quad \text{with } X(t_0) = X_0$$