Laplace Transform Puzzle:

You are given a time-domain function:

$$f(t) = 3e^{2t}$$

Question:

What is the Laplace Transform $F(s) = \mathcal{L}\{f(t)\}$ of this function?

Hint:

Use the standard Laplace transform rule:

$$\mathcal{L}\{e^{at}\} = \frac{1}{s-a}, \quad \text{for } s > a$$

Given:

$$f(t) = 3e^{2t}$$

Using the Laplace transform rule:

$$\mathcal{L}\{3e^{2t}\} = 3 \cdot \mathcal{L}\{e^{2t}\} = 3 \cdot \frac{1}{s-2} = \frac{3}{s-2}$$

🎯 **Answer:**

$$\boxed{\mathcal{L}\{3e^{2t}\} = \frac{3}{s-2}}, \quad \text{for } s > 2$$