ENTER THE TITLE

ENTER THE NAME

July 14, 2025

1 Exercise 1.

Suppose that the temperature field T is given by the function $F(x, y) = x^2 e^y$ in coordinates x, y. Determine the function $F(x', y')$, which gives the temperature field T in coordinates x', y'.

sol.

$F'(x', y') = F(2x', 2y') = F(x, y) = (2x')^2 e^{2y'}$ ■

2 Exercise 2.

This is a table.

3 Exercise 3.

The derivation of the Black-Scholes equation involves the use of Ito's Lemma and the concept of a risk-neutral portfolio. Consider a stock whose price $S(t)$ follows the stochastic differential equation:

$$dS = \mu S dt + \sigma S dW \tag{1}$$

where:

- μ is the drift rate of the stock.
- σ is the volatility of the stock.
- W is a Wiener process or Brownian motion.

Definition 3.1: The Formula

$$dS = \mu S dt + \sigma S dW \tag{2}$$

Table 1: Enter table caption here.

Tap number	Relative power (dB)	Relative delay (ns)	Relative mean power (dB)
3	0−9.0	68,900[1]	−12.8
4	−10.0	12,900[2]	−10.0
5	−15.0	17,100	−25.2

References

[1] Pavel Grinfeld. *Introduction to Tensor Analysis and the Calculus of Moving Surfaces*. Springer, 2013.

[2] B. B. Bartelle, A. Barandov, and A Jasanoff. "Molecular fMRI". In: *Journal of Neuroscience* 36 (2016), pp. 4139–4148.