2025 Winter MAT136 Exam (Practice Exam)

Part A. Short answer questions. Give a brief justification of a few sentences for your final answer.

A1. [2 marks] Let $v(t)$ be the velocity in metres per second of a particle at time t, measured in seconds. The particle travels in a straight line towards a measuring device from $t = 0$ to $t = 3$ and then travels away from the device, along the same line, from $t = 3$ to $t = 10$. Write one or a sum of more than one integral involving $v(t)$ that can be used to calculate the distance between the particle at $t = 10$ and its starting position at $t = 0$.

A2. [2 marks] In the box below, write an antiderivative of $\dfrac{x}{x+2}$

A3. [2 marks] Using the table of values below, find a possible value of b such that

$$7 \leq J \leq 10$$

$$\int_a^b$$