

Suggested Problems (Week 2)

MATH 142

Friday 4th June, 2021

Problem 1. What is wrong with the following calculation?

$$\int_{-1}^4 \frac{1}{x^2} = \frac{x^{-1}}{-1} \Big|_{-1}^4 = \frac{-1}{4} - 1 = -\frac{5}{4}.$$

Problem 2. Evaluate

$$\int_2^4 \frac{dx}{x}.$$

Problem 3. A particle moves along a line with velocity at time t given by $v(t) = t^2 - 5t + 4$ measured in m/s .

- Determine the displacement of the particle from time $t = 2$ to time $t = 6$.
- Determine the distance travelled by the particle in the same time.

Problem 4. Compute the following:

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$$\int (1 + x^2)^{1/3} x^3 dx.$$

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$$\int_1^e \frac{(\ln x)^2}{x} dx.$$