MATH101 Section 14 Quiz, Week 20/11/23-24/11/23

Questions: 1. Find

$$\int \frac{(\tan x)^2 dx}{\sin x}.$$

2. Approximate the area under the graph of $y = \sin x$ from 0 to π using (3 or) 4 rectangles, **clearly showing your work and drawing an appropriate diagram.**

3. Now state the exact area.

4. State the Chain Rule for functions f, g.

5. The Integration by Substitution Rule says that for two functions f, g

$$\int f(g(x))g'(x) = F(g(x))$$

where $F' = f$. Prove it, clearly writing down what results you call on.