

MATHEMATICS 2270. Homework # 8.

1. Determine if the set

$$S = \{ \text{all continuous functions } f : \mathbb{R} \rightarrow \mathbb{R} \text{ such that } \frac{1}{2}(f(x))^2 = \int_0^x f(t)dt \}$$

is a subspace of the space of all continuous functions? Hint: try to find a (nonzero) polynomial function which belongs to  $S$ .

2. §4.1, # 3.

3. §4.1, # 26.

4. §4.1, # 28.

5. §4.2, # 46.

6. Use Cramer's Rule to find all values of the parameter  $a$  for which the system

$$\begin{cases} ax + y = 1 \\ 4x + ay = 2 \end{cases}$$

is consistent.