Project 1, Numerical differential equations

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1 Introduction

Sjekker om det funker skriver mer for å sjekke en gang til

2 Theory

Theorem 1. *For any real number x, $x^2 \geq 0$. Equality holds if and only if $x = 0$.*

Proof. If $x = 0$, then $x^2 = 0$. If $x \neq 0$, then $x^2 > 0$. This proves the theorem. Gjør endring i beviset for å sjekke om det funker. Gaute gjør endring for å se om det funker □

Theorem 2. *The Pythagorean theorem states that for any right triangle with sides of length a, b and c where c is the hypotenuse, the following equation holds:*

$$a^2 + b^2 = c^2 \tag{1}$$

Proof. The Pythagorean theorem states that for any right triangle with sides of length a, b and c where c is the hypotenuse, the following equation holds:

$$a^2 + b^2 = c^2 \tag{2}$$

This can be proven by considering the area of the square with side length $a + b$ in two different ways. The area of the square is $(a + b)^2 = a^2 + 2ab + b^2$. The area can also be calculated by adding the areas of the squares with side lengths a and b to get $a^2 + b^2 + 2ab$. Since the two expressions for the area are equal, we get the Pythagorean theorem. □