

Matematisk modellering og numeriske metoder

Opgaver til Lektion 4

Morten Grud Rasmussen

19. september 2016

Exercise 1

1. 0.3183
2. 0.4775
3. 0.5738

Exercise 2

$$\sqrt{x}(c_1 \cos(\ln(x)) + c_2 \sin(\ln(x)))$$

Exercise 4

$$W(f, g)(x) = -2e^{-3x}$$

Exercise 5

$$W(f, g)(x) = 0.5e^{3x}, y'' + 5y' + 6.5y = 0, y_p(x) = 1.5e^{-2.5x} \cos(0.5x) + 3.5e^{-2.5x} \sin(0.5x)$$

Exercise 6

1. $y(x) = c_1 e^{-3x} + c_2 e^{-2x} + e^{-x}$
2. $y(x) = (c_1 + c_2 x) e^{-2x} + \frac{1}{2} e^{-x} \sin(x)$