

PROBLEM A.1 - NEWTON'S METHOD

Allison Davis

April 12, 2019

1. Equation 1:

$$\frac{1}{100}[x^4 + (e - 2 - \sqrt{2})x^3 + (2\sqrt{2} - \sqrt{2}e - 3 - 2e)x^2 + (2\sqrt{2}e + 3\sqrt{2} - 3e)x + 3\sqrt{2}e] = 0$$

Approximations to the solution:

$z_0 = 2$ gives an approximate solution of 1.41.

$z_0 = -2$ gives an approximate solution of 3.00.

$z_0 = -5$ gives an approximate solution of -2.72 .

2. Equation 2:

$$\tan(x) - x - 2 = 0$$

Approximations to the solution:

$z_0 = \pi/2$ gives an approximate solution of 1.57.

$z_0 = \pi/3$ gives an approximate solution of 1.42.

It seems like most values exceed N iterations.