Hw3-howard

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Problem 1:

$$x_1 = C$$
$$x_n = 1 + \frac{1}{x_{n-1}} \quad \text{for} \quad n \geq 2$$

choose C to be 3.

$n=1$

$$x_1 = 3$$

$n=2$

$$x_2 = 1 + \frac{1}{x_1} = 1 + \frac{1}{3} = \frac{4}{3} = 1.\overline{3}$$

$n=3$

$$x_3 = 1 + \frac{1}{x_2} = 1 + \frac{1}{4/3} = 1 + \frac{3}{4} = \frac{7}{4} = 1.75$$

$n=4$

$$x_4 = 1 + \frac{1}{x_3} = 1 + \frac{1}{7/4} = 1 + \frac{4}{7} = \frac{11}{7} \approx 1.5714$$

$n=5$

$$x_5 = 1 + \frac{1}{x_4} = 1 + \frac{1}{11/7} = 1 + \frac{7}{11} = \frac{18}{11}. \approx 1.63\overline{6}$$