## Exercise 10.4S Q1

a) $x^3 - x^2 = 200$

$x^3 = x^2 + 200$

$x = \sqrt[3]{x^2 + 200}$

$x_{n+1} = \sqrt[3]{x_n^2 + 200}$

Try $x = 10$

$x_1 = \sqrt[3]{10^2 + 200} = 6.694$

$x_2 = \sqrt[3]{6.694^2 + 200} = 6.256$

$x_3 = \sqrt[3]{6.256^2 + 200} = 6.207$

$x_4 = \sqrt[3]{6.207^2 + 200} = 6.202$

$x = 6.202$ is approximate root

## Exercise 10.4S Q 2, 3, 4, 5

2 a): $p(p+1) = 100$

$p^2 + p = 100$

$p^2 = 100 - p$

$p = \sqrt{100 - p}$

$p_{n+1} = \sqrt{100 - p_n}$

Let $p_0 = 9$

$p_1 = \sqrt{100 - 9} = 9.539$

$p_2 = \sqrt{100 - 9.539} = 9.511$

$p_3 = \sqrt{100 - 9.511} = 9.513$

$p \approx 9.51$

ii $p(p+1) = 100$

$p^2 + p = 100$

$p = 100 - p^2$

$$p_{n+1} = 100 - p_n^2$$

Let $p_0 = 9$

$$p_1 = 100 - 9^2 = 19$$

$$p_2 = 100 - 19^2 = -261$$

$$p_3 = 100 - (-261)^2 = -68021$$

This formula does not lead to a root!