

MATH336 - HW#8

1.

$$(1) \frac{2x^3 + 6x^2 + 10x + 7}{x^3 + 5x^2 + 6x + 4} ; SSS = 1.307515962$$

$$(2) \frac{9x^3 + 10x^2 + 8x + 2}{7x^3 + 7x^2 + 6x + 1} ; SSS = 1.360052363$$

$$(3) \frac{3x^3 + 5x^2 + 3x + 5}{x^3 + 3x^2 + 10x + 8} ; SSS = 0.4186175181$$

$$(4) \frac{5x^3 + 5x^2 + 3x + 1}{2x^3 + 15x^2 + 10x + 10} ; SSS = 0.1292929950$$

$$(5) \frac{9x^3 + 2x^2 + 4x + 8}{4x^3 + 7x^2 + 9x + 5} ; SSS = 0.9127501974$$

$$(6) \frac{10x^3 + 9x^2 + 10x + 3}{8x^3 + 7x^2 + 9x + 4} ; SSS = 1.164908077$$

$$(7) \frac{2x^3 + 10x^2 + x + 9}{x^3 + 8x^2 + 7x + 4} ; SSS = 1.094863281$$

$$(8) \frac{7x^3 + x^2 + 4x + 6}{9x^3 + 5x^2 + 9x + 2} ; SSS = 0.7927386281$$

$$(9) \frac{4x^3 + 3x^2 + 4x + 9}{10x^3 + 4x^2 + 4x + 6} ; SSS = 0.8947709009$$

$$(10) \frac{2x^3 + 7x^2 + 2x + 8}{7x^3 + 5x^2 + 3x + 5} ; SSS = 0.9672041816$$

2.

- For $k=1, 2$, and 2.5 , orbit converges to a single value
- For $k=3.1, 3.2$, and 3.3 , orbit oscillates between 2 distinct values
- For $k=3.5$, orbit oscillates between 4 distinct values

3.

- 2SSS: $k=361$
- 4SSS: $k=2521$