HW 8.

1. $N = s + i + r$.

From 6.6. $\overline{I}_2 = \gamma \frac{N - \frac{\gamma}{\beta}}{\nu + \gamma}$

$\overline{R}_2 = \nu \frac{\overline{I}_2}{\gamma}$ $\quad \nu = 1.7 \quad \gamma = 1.2 \quad N = 1000$

$$\overline{R}_2 = \frac{\gamma \nu}{\gamma} \left(\frac{N - \frac{\nu}{\beta}}{\nu + \gamma} \right) = 1.2 \left(\frac{1000 - \frac{1.2}{\beta}}{2.4} \right)$$

$$= 500 - \frac{0.6}{\beta}$$

So we get:

β	r^*
0.01	440
0.02	470
0.03	480
0.04	485
0.05	488
0.06	490
0.07	491.43
0.08	492.50
0.09	493.33
0.1	~~494.55~~ 494
0.11	~~495.00~~ 494.55
0.12	~~495.38~~ 495
0.13	~~495.71~~ 495.38
0.14	~~496~~ 495.71
0.15	~~496~~ 496
0.16	~~496.25~~ 496.25
0.17	~~496.47~~ 496.47
0.18	~~496.67~~ 496.67
0.19	~~496.84~~ 496.84
0.20	497 497

2. 20 times it gave me a stable equilibrium $\{a, b\}$ where $a > 100$, $0 < b < 1$.

3. ✓

4.

①	0.5300
②	0.5480
③	0.5510
④	0.5810
⑤	0.5640
⑥	0.5510
⑦	0.5410
⑧	0.5690
⑨	0.5380
⑩	0.5980

I would say these answers are all close as they are in the range $0.5 < x < 0.6$.

I would estimate that the probability is about 0.55.