$$pA_{t+1} = \frac{p_{A_t}(1+u)}{1+up_{A_t}(2-p_{A_t})}$$

$pA_0 = 0.4$

When u = 0

$$\frac{0.4(1+0)}{1+(0\times0.4)(2-0.4)} = 0.4$$

Substituting this in the formula again (no matter how many times) will return 0.4.
This is because u = 0 and this means that there is no selective advantage for A or B.

When u = 0.4

$$\frac{0.4(1+0.4)}{1+(0.4\times0.4)(2-0.4)} = 0.446\text{(3dp)}$$

Using the calculator, the next equation looks like this…

$$\frac{M(1+0.4)}{1+(0.4\times M)(2-M)} = 0.489\text{(3dp)}$$

$pA_3 = 0.528$ (3dp)
$pA_4 = 0.564$ (3dp)
$pA_5 = 0.596$ (3dp)

The probability of A increases with every generation.

When u = -0.4

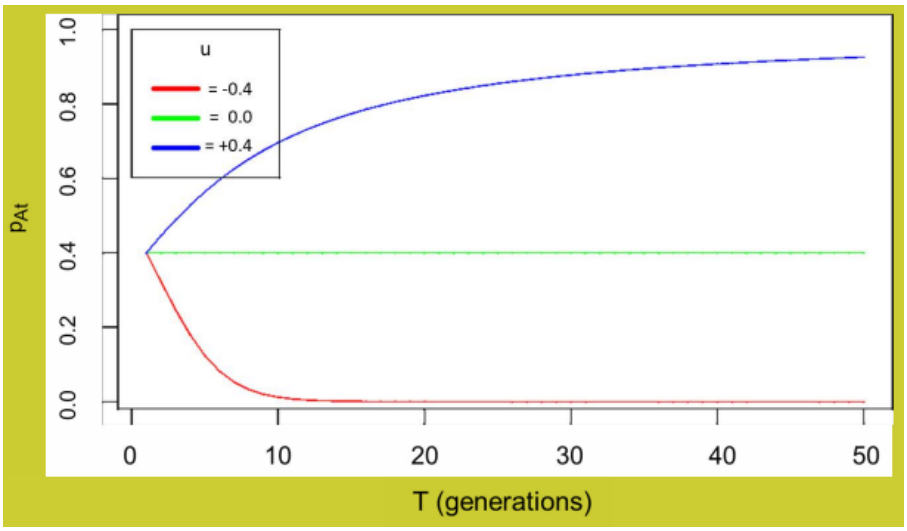
$$\frac{0.4(1-0.4)}{1+(-0.4\times0.4)(2-0.4)} = 0.323\text{(3dp)}$$

Using the calculator, the next equation looks like this…

$$\frac{M(1-0.4)}{1+(-0.4\times M)(2-M)} = 0.247\text{(3dp)}$$

$pA_3 = 0.179$ (3dp)
$pA_4 = 0.124$ (3dp)
$pA_5 = 0.082$ (3dp)

The probability of A decreases with every generation (and at a faster rate compared to the increase when u = 0.4).



- What is happening with the green line?

The probability that an allele is A is 0.4. As the green line is a straight horizontal line, the probability doesn't change for 50 generations and we can speculate that it stays the same forever.

- Why does the red line go to zero faster than the blue line goes to one?

One observation is the fact that from 0.4, there is a larger distance to 1 than 0.
However, this isn't the only factor because we can see that the red line's gradient is steeper than the blue line's gradient.
After around 15 generations, the red line reaches 0 whilst the blue line reaches 1 after more than 50 generations.
When u = 0.4, with each generation, the numerator and the denominator in the formula both increase.
When u = -0.4, with each generation, the numerator decreases and the denominator increases.

The lowest bound is returned when the numerator is the lower bound and the denominator is the upper bound.
Therefore, the formula with u = -0.4 is ideal for decreasing the result.
However, when u = 0.4, the formula isn't as efficient in increasing because the highest bound is returned when the numerator is the upper bound and the denominator is the lower bound. As the denominator actually increases, this slows down the rate of change for the blue line.