APPENDIX

A.1

CODES

def snail(g,x,u0,n,xmin,xmax):

u = u0

P1 = plot(x,x,xmin,xmax,color='gray', legend\_label='Beverton-Holt model with $r=1$')

for i in range(n):

P1 += line([[u,u],[u,g(u)],[g(u),g(u)]],color = 'red', linestyle = '--')

u = g(u)

P1 += g.plot(x,xmin,xmax,color='blue', linestyle = ':')

P1.axes\_labels(['y','z'])

P1 += arrow((u,u),(u,g(u)), color ='red', width = 0, linestyle = '--')

P1 += arrow((u,g(u)),(g(u),g(u)),color = 'red', width = 0, linestyle = 'dashed')

P2 = text('$z=y$', (4.5,4.3), fontsize=15)

P3 = text('$((z=ay)\,/ (1+by))-Ey$',(1,3.6), fontsize =15)

P = P1+P2+P3

P.show()

g(x)=((12\*x)/(1+1.5\*x))-1.6\*x

snail(g,x,1,5,0,5)