def recur(f, x0, n):

points = [(0, x0)]

for i in [1..n]:

points.append((i, f(points[i-1][1])))

return points

f(x) = 2.1\*x

#points(recur(f, 0.1, 20)).show()

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

u = u0

P = plot(x, x, xmin, xmax, color='gray')

for i in range(n):

P += line([[u,u],[u,f(u)],[f(u),f(u)]], color = 'red')

u = f(u)

P += f.plot(x, xmin, xmax, color='blue')

P.show()

snail(f,x,0.4,4,0,8)

def recur(f, x0, n):

points = [(0, x0)]

for i in [1..n]:

points.append((i, f(points[i-1][1])))

return points

f(x) = 0.7\*x

#points(recur(f, 0.1, 20)).show()

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

u = u0

P = plot(x, x, xmin, xmax, color='gray')

for i in range(n):

P += line([[u,u],[u,f(u)],[f(u),f(u)]], color = 'red')

u = f(u)

P += f.plot(x, xmin, xmax, color='blue')

P.show()

snail(f,x,6,6,0,10)

def recur(f, x0, n):

points = [(0, x0)]

for i in [1..n]:

points.append((i, f(points[i-1][1])))

return points

f(x) = 10\*x^2/(x^2+21)

#points(recur(f, 0.1, 20)).show()

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

u = u0

P = plot(x, x, xmin, xmax, color='gray')

for i in range(n):

P += line([[u,u],[u,f(u)],[f(u),f(u)]], color = 'red')

u = f(u)

P += f.plot(x, xmin, xmax, color='blue')

P.show()

snail(f,x,3.5,9,0,10)