PIBIC-EM

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Soluções de atividades selecionadas

1. (a)

```
g = -9.8
t = 0.5
x0 = 0.
y0 = 0.
v0x = 10.
v0y = 10.
x = x0 + v0x*t
y = y0 + v0y*t + (g/2)*t^2
println(" t = ", t)
println(" x = ", x)
println(" y = ", y)
```

(b)

```
g = -9.8
t = 0.5
x0 = 0.
y0 = 0.
v0x = 10.
v0y = 10.
npassos = 2500
x = [ 0. for i in 1:npassos ]
y = [ 0. for i in 1:npassos ]
for i in 1:npassos
  dt = 0.001
  t = i*dt
  x[i] = x0 + v0x*t
  y[i] = y0 + v0y*t + (g/2)*t^2
end
using PyPlot
plot(x,y)
savefig("ex1b.png")
```

(c)

```
g = -9.8
t = 0.5
x0 = 0.
y0 = 0.
v0x = 10.
v0y = 10.
npassos = 2500
x = [ 0. for i in 1:npassos ]
y = [ 0. for i in 1:npassos ]
for i in 1:npassos
  dt = 0.001
  t = i*dt
  x[i] = x0 + v0x*t
  y[i] = y0 + v0y*t + (g/2)*t^2
  if y[i] <= 0
    println(" t fim = ", t)
    break
  end
end
```

(d)

```
g = -9.8
t = 0.5
x0 = 0.
y0 = 0.

angulo = 30 * ( pi / 180 ) # variar este valor
vmodulo = sqrt( 10^2 + 10^2 )
v0x = vmodulo * cos(angulo)
v0y = vmodulo * sin(angulo)

npassos = 2500
x = [ 0. for i in 1:npassos ]
y = [ 0. for i in 1:npassos ]
for i in 1:npassos
  dt = 0.001
  t = i*dt
  x[i] = x0 + v0x*t
  y[i] = y0 + v0y*t + (g/2)*t^2
  if y[i] <= 0
    println(" t fim = ", t, " x fim = ", x[i])
```

```
    break
  end
end
```