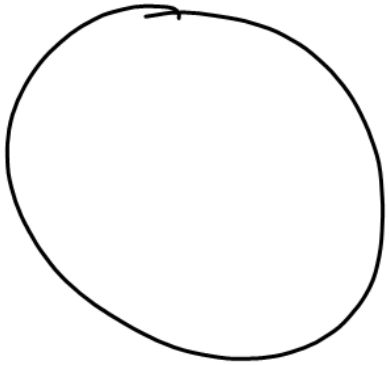
# ASDRÍ (agente).

## Teoría de Sistemas (teórica científica).



Se revisarán los temarios de las asignaturas:

- Recursos y Necesidades de México,
- Ingeniería Industrial y Productividad,
- Estadística,
- Metodologías de la Planeación,
- Ecuaciones Diferenciales,
- Electricidad y Magnetismo,
- Termofluidos,

| | T | P |
|---|---|---|
| EDO | 80% | 20% |
| EDP | 20 % | 80% |

$\frac{d^2y}{dt^2} = -g$

$y(t)$

$\frac{\partial^2 u}{\partial y^2} + a_1 \frac{\partial^2 u}{\partial x^2} = 0$

$u(x,y)$

$z(x, x_2, x_3, \ldots, x_{20})$

$d\left(\frac{dy}{dt}\right) = -g\,dt$ M.U.S.

$\int d\left(\frac{dy}{dt}\right) = -g \int dt$

$\frac{dy}{dt} + c_1 = -g(t + c_2)$

$\frac{dy}{dt} = -gt + (-gc_2 - c_1)$

$\frac{dy}{dt} = -gt + c_{10}$

$dy = (-gt + c_{10})\,dt$

$\int dy = -g \int t\,dt + c_{10} \int dt$

$y + c_3 = -g\left(\frac{t^2}{2} + c_4\right) + c_{10}(t + c_5) + c_6$

$y = -g\frac{t^2}{2} + c_{10}t + (-gc_4 + c_{10}c_5 + c_6 - c_3)$

$y = -g\frac{t^2}{2} + c_{10}t + c_{20}$

$g = 9.8067$

$y(0) = 2.0$ m

$y'(0) = 0$

$y(0) = -9.8067(0) + c_{10}(0) + c_{20} = 2$

$c_{20} = 2.0$

$\frac{dy}{dt} = -gt + c_{10}$ $\quad y'(0) = -2(9.8067)(0) + c_{10} = 0$

$c_{10} = 0$

$y = -\frac{g}{2}t^2 + 2.0$

$-\frac{9.8067}{2}t^2 + 2.0 = 0$

$t^2 = \frac{2.0 \times 2}{9.8067} \Rightarrow 0.407888$

$t = 0.638658$ seg

$\left.\frac{dy}{dt}\right|_{t=0.63} = -9.8067(0.638658) = -6.2631 \frac{m}{s}$ ②

$-10.84 \frac{m}{s}$ ⑥

$-\frac{g}{2}t^2 + 6 = 0$

$t^2 = \frac{6 \times 2}{g} \Rightarrow \frac{12}{g} = 1.22$

$t = \sqrt{1.22} = 1.106$

$\frac{dy}{dt} = -g(1.106) = 10.84$

$-\frac{g}{2}t^2 + x = 0$

$t = \sqrt{\frac{2x}{g}}$

$F = Ma$

$-Kx = M\frac{d^2x}{dt^2}$

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> restart
> Tiempo := y(x) = sqrt( 2·x / 9.8067 )
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$$Tiempo := y(x) = 0.4515996045\sqrt{x}$$

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> plot(rhs(Tiempo), x = 0..10)
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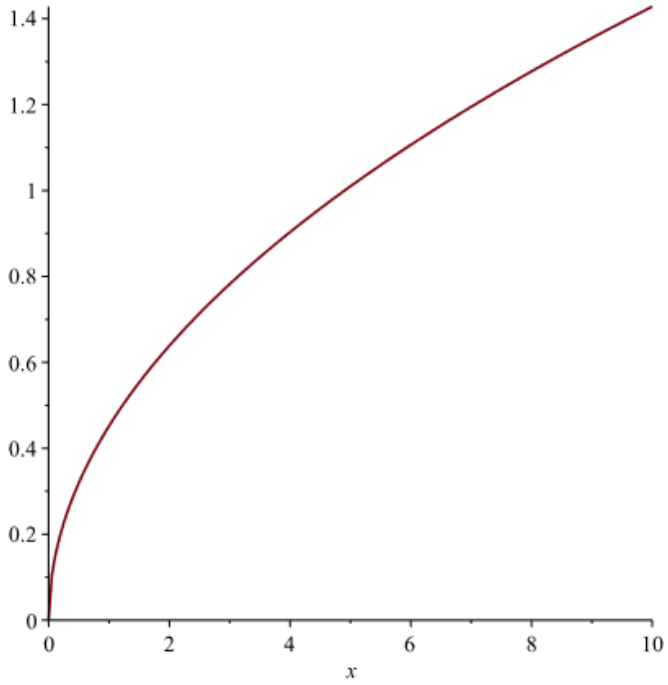
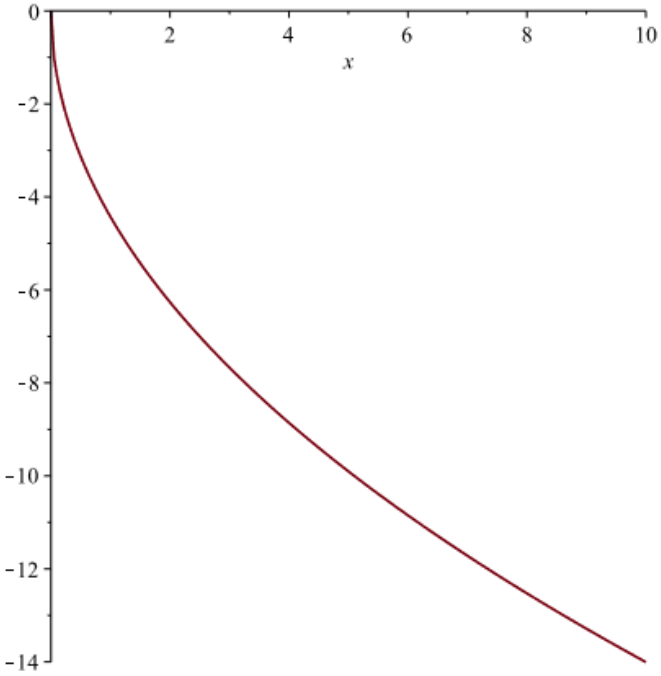



Gráfica del tiempo en función de la altura




Gráfica de la velocidad de impacto en función de la altura