

Mathematica Ex Lv.0 to Lv.2 (v.1 2016/04/20 haochenx)

Questions and example solution

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Level 0

$$\text{In}[1]:= 1 + 1$$

$$\text{In}[2]:= \frac{\sqrt{6} - 3/4}{\sqrt[3]{100}}$$

$$\text{In}[3]:= \text{N}\left[\frac{-\frac{3}{4} + \sqrt{6}}{10^{2/3}}\right]$$

$$\text{In}[4]:= \sin\left[\frac{17}{6}\pi\right]$$

Level 1

$$\text{In}[5]:= \text{D}\left[t^3 + \frac{\sin[t] + \cos[t^2]}{\sqrt{t^2 + 7}}, t\right]$$

$$\text{In}[6]:= \int \frac{6x}{\sqrt{x^2 + 6}} dx$$

$$\text{In}[7]:= \int_6^{10} \left(\sin[x]^2 + \frac{1}{x^2}\right) dx$$

Level 2

$$\text{In}[8]:= \text{Solve}[x^2 + 6x - 7 == 0, x]$$

$$\text{In}[9]:= \text{DSolve}[\text{D}[x[t], t] == 2x[t] + \sin[t], x, t]$$

$$\text{In}[10]:= \text{DSolve}[\{\text{D}[x[t], t] == 2x[t] + \sin[t], x[0] == 1\}, x, t]$$