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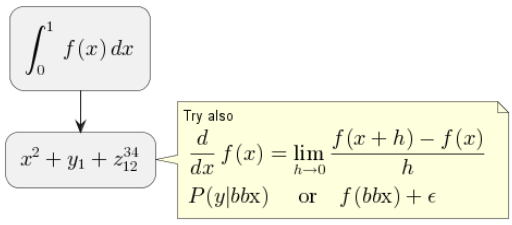
Maths

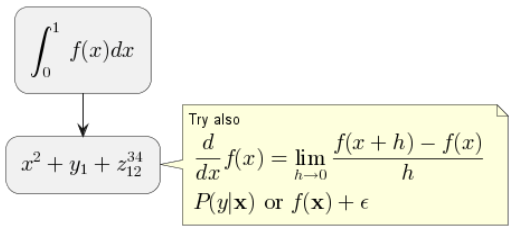
Within PlantUML, you can use AsciiMath notation:

```
@startuml
:<math>int_0^1f(x)dx</math>;
:<math>x^2+y_1+z_12^34</math>;
note right
Try also
<math>d/dxf(x)=lim_(h->0)(f(x+h)-f(x))/h</math>
<math>P(y|bb"x") or f(bb"x")+epsilon</math>
end note
@enduml
```



or JLaTeXMath notation:

```
@startuml
:<latex>\int_0^1f(x)dx</latex>;
:<latex>x^2+y_1+z_{12}^{34}</latex>;
note right
Try also
<latex>\dfrac{d}{dx}f(x)=\lim\limits_{h \to 0}\df
<latex>P(y|\mathbf{x}) \mbox{ or } f(\mathbf{x})+'
end note
@enduml
```



Here is another example:

Standalone diagram
How is this working?

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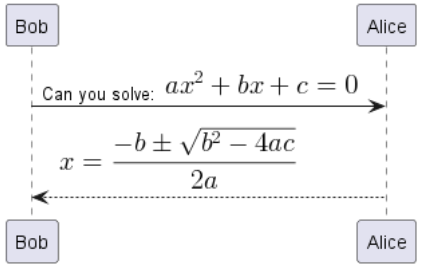
```
Bob -> Alice : Can you solve: <math>ax^2+bx+c=0</
Alice --> Bob: <math>x = (-b+-sqrt(b^2-4ac))/(2a)
@enduml
```



Standalone diagram

You can also use `@startmath` / `@endmath` to create standalone AsciiMath formula.

```
@startmath
f(t)=(a_0)/2 + sum_(n=1)^ooa_ncos((npit)/L)+sum_(
@endmath
```

$$f(t) = \frac{a_0}{2} + \sum_{n=1}^{\infty} a_n \cos\left(\frac{n\pi t}{L}\right) + \sum_{n=1}^{\infty} b_n \sin\left(\frac{n\pi t}{L}\right)$$

Or use `@startlatex` / `@endlatex` to create standalone JLaTeXMath formula.

```
@startlatex
\sum_{i=0}^{n-1} (a_i + b_i^2)
@endlatex
```

$$\sum_{i=0}^{n-1}(a_i + b_i^2)$$

How is this working?

To draw those formulas, PlantUML uses two open source projects:

- AsciiMath that converts AsciiMath notation to LaTeX expression;
- JLatexMath that displays mathematical formulas written in LaTeX. JLaTeXMath is the best Java library to display LaTeX code.

ASCIIMathTeXImg.js is small enough to be integrated into PlantUML standard distribution.

Since JLatexMath is bigger, you have to download it separately, then unzip the 4 jar files (*batik-all-1.7.jar*, *jlatexmath-minimal-1.0.3.jar*, *jlm_cyrillic.jar* and *jlm_greek.jar*) in the same folder as PlantUML.jar.