Basic Latex Example

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Table of Contents

Chapter 1. Demo1

1.1. Ascii Doc Source Code

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

1.2. Output

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

Figure 1. demo1

Chapter 2. Demo 2

2.1. Ascii Doc Source Code

```
[latex,demo2]
----
@startmath
\underbrace{a_0+a_1+a_2+\cdots+a_n}_{x}
@endmath
----
```

2.2. Output

$$\underbrace{a_0 + a_1 + a_2 + \cdots + a_n}_{x}$$

Figure 2. demo2

Chapter 3. Demo 3

3.1. Ascii Doc Source Code

```
[latex,demo3]
----
@startmath
2x^2 + 3(x-1)(x-2)  = 2x^2 + 3(x^2-3x+2) = 2x^2 + 3x^2 - 9x + 6 = 5x^2 - 9x + 6
@endmath
----
```

3.2. Output

$$2x^2 + 3\left(x - 1\right)\left(x - 2\right) = 2x^2 + 3\left(x^2 - 3x + 2\right) = 2x^2 + 3x^2 - 9x + 6 = 5x^2 - 9x + 6$$

Figure 3. demo3

Chapter 4. Demo 4

4.1. AsciiDoc Source Code

```
[latex,demo4]
----
@startuml
!theme silver
:<latex>q_{w}=\varepsilon q_{w,0} \sqrt{\frac{{L}}{{h_{ w}}}}</latex>;
@enduml
----
```

4.2. Output

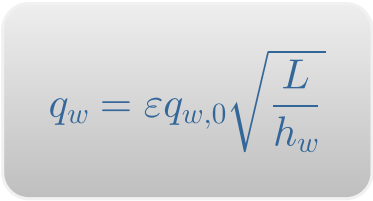

Figure 4. demo4

Chapter 5. Demo 5 - Conduction in a finite thickness, rotating disk

5.1. AsciiDoc Source Code

```
[latex,demo5]
----
@startuml
!theme silver
:<latex>\frac {\partial^2 u} {\partial \rho^2} + \frac{1}{\rho} \frac{\partial
u}{\partial \rho} + \left(\frac{r_0}{z_0}\right)^2 \frac{\partial^2 u}{\partial
\zeta^2} = P\frac{\partial u}{\partial \theta}; \quad P = \omega r_0^2 /
\alpha</latex>;
@enduml
----
```

5.2. Output

$$\frac{\partial^2 u}{\partial \rho^2} + \frac{1}{\rho}\frac{\partial u}{\partial \rho} + \left(\frac{r_0}{z_0}\right)^2 \frac{\partial^2 u}{\partial \zeta^2} = P\frac{\partial u}{\partial \theta}; \quad P = \omega r_0^2/\alpha$$

Figure 5. demo5

Chapter 6. Demo 6

6.1. Combining Multiple equations in a single diagram

6.2. AsciiDoc Source Code

```
[latex,demo6]
----
@startuml
!theme silver
:<latex>q_{w}=\varepsilon q_{w,0} \sqrt{\frac{{L}}{{h_{ w}}}}</latex>;
:<latex>\frac {\partial^2 u} {\partial \rho^2}</latex>;
@enduml
----
```

6.3. Output

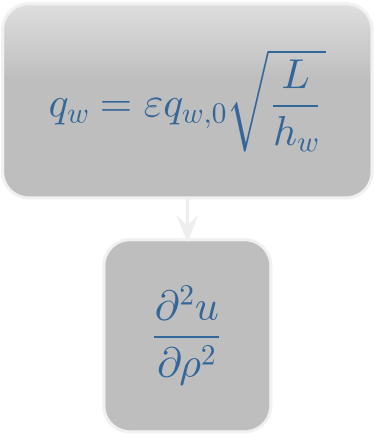

Figure 6. demo6

Chapter 7. Demo 7

7.1. Source

```
[latex,demo7]
----
@startuml
!theme silver
scale 4
skinparam Backgroundcolor transparent
:<math>int_-1^1 sqrt(1-x^2)dx = pi/2</math>]
@enduml
----
```

7.2. Output

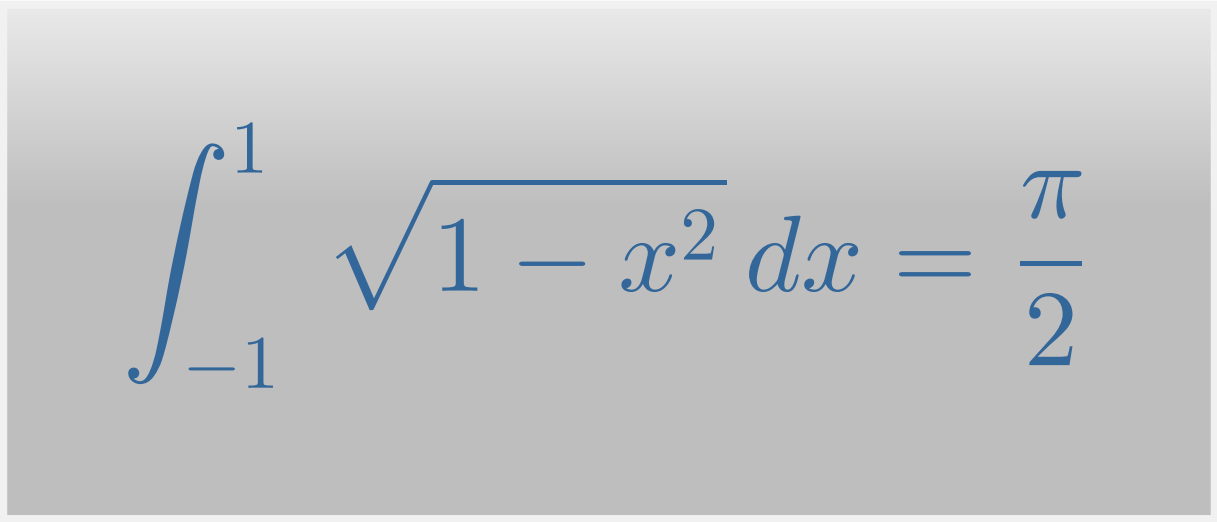

Figure 7. demo7

Chapter 8. Demo 8 Bit complex

8.1. Source

```
@startuml
!theme silver
left to right direction
skinparam dpi 192
skinparam componentStyle uml2
[<back:gray><latex>P(y|\mathbf{x}) \mbox{ or } f(\mathbf{x})+\epsilon</latex></back>]
as fx
[<color:blue><latex>\mathcal{D}</latex></color>] as D
[<latex>\mathcal{H}</latex>] as H
[<latex>\mathcal{g}</latex>] as g
[<latex>P(\mathbf{x})</latex>] as Px
(<latex>\mathcal{A}</latex>) as A
Px --> D
fx --> D
D --> A
H --> A
A --> g
g .> fx: <latex>\mbox{Loss}(f,g)</latex>
@enduml
```

8.2. Output

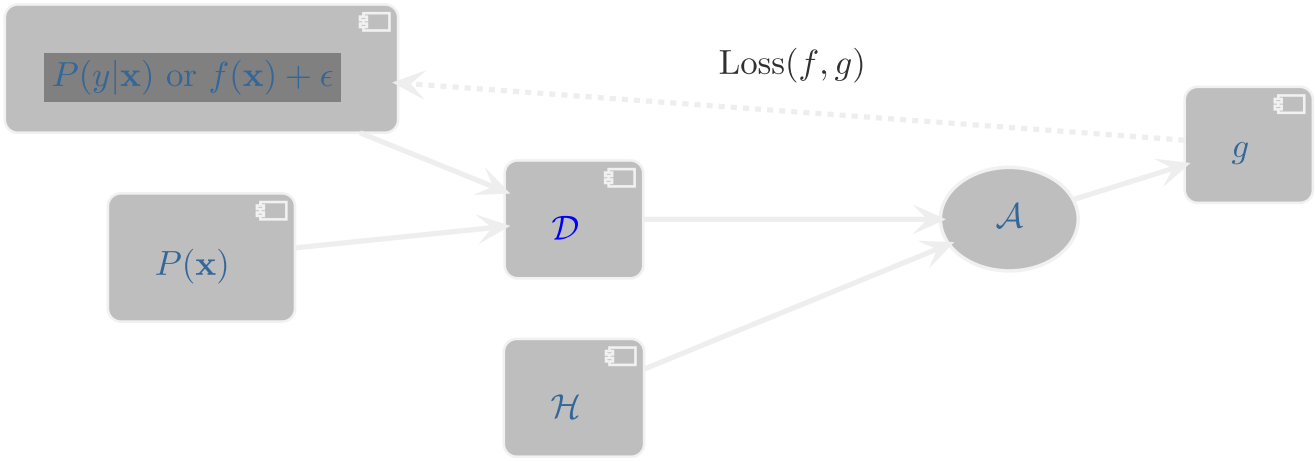

Figure 8. demo8

Chapter 9. Demo 9

9.1. Source

```
[latex,demo9]
----
@startuml
!theme silver
:<math>f(t) = a_(0)/2 + sum_(n=1)^oo [a_(n) cos(nt) + b_(n) sin(nt)]</math>]
:<math>x^' = frac(-b -sqrt(Delta))(2a)</math>]
:<math>ax^2 + bx + c = 0</math>]
@enduml
----
```

9.2. Output

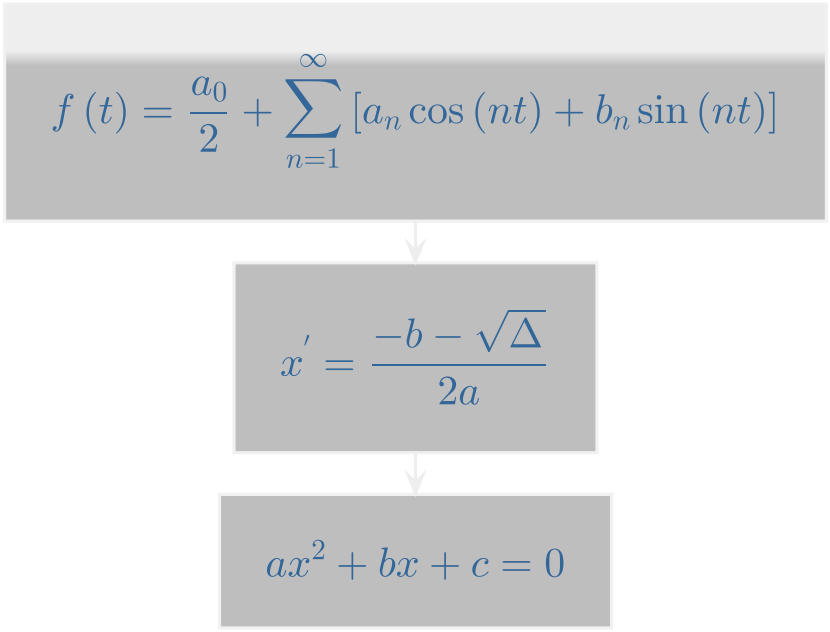

Figure 9. demo9