Оглавление

[0 "Default\*(kabs\*C0)", 1](#_Toc479075612)

[1 "(-vabs)/Default", 2](#_Toc479075613)

[2 "k3\*gal+k1\*lac/K\_l+k2\*alac/K\_a+k44\*x1+k44\*x2", 3](#_Toc479075614)

[3 "V\_\_\_1\_\_\_+V\_\_\_2\_\_\_-V\_\_\_3\_\_\_-V\_\_\_4\_\_\_", 5](#_Toc479075615)

[4 "1+K2\_H1\_D/10^(-6.3)+10^(-6.3)/K2\_H2\_D", 6](#_Toc479075616)

[5 "alf\_pH\_D\*(1+NAD/Kd\_NAD\_D+NADH/Kd\_NADH\_D)+bet\_pH\_D\*(Hol/Kd\_Hol\_D+Hol\*NAD/Kd\_NAD\_Hol\_D/Kd\_NAD\_D)+gam\_pH\_D\*(NADH\*Hal/Kd\_Hal\_NADH\_D/Kd\_Hal\_D+Hal/Kd\_Hal\_D+NAD\*Hal/Kd\_Hal\_NAD\_D/Kd\_Hal\_D+His\*NADH/Kd\_NADH\_His\_D/Kd\_NADH\_D+His/Kd\_His\_D)", 8](#_Toc479075617)

[6 "(1+L\_dm\*F\_dm^(n-1)\*H\_dm^n)/(1+L\_dm\*(F\_dm\*H\_dm)^n)", 15](#_Toc479075618)

[7 "V\_\_\_5\_\_\_\*2.000-V\_\_\_7\_\_\_", 18](#_Toc479075619)

[8 "SDH\*((kf\_SDH/(1+Sal/Ki\_Sal\_SDH))\*Suc\_SDH\*Q\_SDH-kr\_SDH\*Fum\_SDH\*QH2\_SDH)/(1+Suc\_SDH+Q\_SDH\*Km\_i\_Suc\_SDH/Kd\_es\_Suc\_SDH+Suc\_SDH\*Q\_SDH+Fum\_SDH+Km\_Fum\_SDH\*QH2\_SDH/Kd\_ef\_Fum\_SDH+Fum\_SDH\*QH2\_SDH)", 19](#_Toc479075620)

[9 "1/v\_mix", 24](#_Toc479075621)

[10 "V1\*k2\*(A1-A2)", 25](#_Toc479075622)

[11 "t/60", 25](#_Toc479075623)

[12 "k\*(S-X1)/(1+X6^n/Ki^n)", 26](#_Toc479075624)

[13 "23\*s\_4\*exp(d\*12)", 28](#_Toc479075625)

[14 "rrr\*pow(rrr, q)", 29](#_Toc479075626)

[15 "45\*min2(eee\*33, k\_1)", 29](#_Toc479075627)

[16 "koff\*min3(1,fun1,fun2)", 30](#_Toc479075628)

[17 "k0\*sin(t)", 31](#_Toc479075629)

[18 "sqrt(e,r)", 32](#_Toc479075630)

[19 "abs(-ppp)" 32](#_Toc479075631)

MathJS cMathML

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|  |  |
| --- | --- |
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## 1 "(-vabs)/Default",

|  |  |
| --- | --- |
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## 2 "k3\*gal+k1\*lac/K\_l+k2\*alac/K\_a+k44\*x1+k44\*x2",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "+",   "fn": "add",   "args": [     {       "implicit": false,       "op": "+",       "fn": "add",       "args": [         {           "implicit": false,           "op": "+",           "fn": "add",           "args": [             {               "implicit": false,               "op": "+",               "fn": "add",               "args": [                 {                   "implicit": false,                   "op": "\*",                   "fn": "multiply",                   "args": [                     {                       "name": "k3"                     },                     {                       "name": "gal"                     }                   ]                 },                 {                   "implicit": false,                   "op": "/",                   "fn": "divide",                   "args": [                     {                       "implicit": false,                       "op": "\*",                       "fn": "multiply",                       "args": [                         {                           "name": "k1"                         },                         {                           "name": "lac"                         }                       ]                     },                     {                       "name": "K\_l"                     }                   ]                 }               ]             },             {               "implicit": false,               "op": "/",               "fn": "divide",               "args": [                 {                   "implicit": false,                   "op": "\*",                   "fn": "multiply",                   "args": [                     {                       "name": "k2"                     },                     {                       "name": "alac"                     }                   ]                 },                 {                   "name": "K\_a"                 }               ]             }           ]         },         {           "implicit": false,           "op": "\*",           "fn": "multiply",           "args": [             {               "name": "k44"             },             {               "name": "x1"             }           ]         }       ]     },     {       "implicit": false,       "op": "\*",       "fn": "multiply",       "args": [         {           "name": "k44"         },         {           "name": "x2"         }       ]     }   ],   "comment": "" } | <math xmlns="http://www.w3.org/1998/Math/MathML">  <apply>  <plus/>  <apply>  <times/>  <ci> k3 </ci>  <ci> gal </ci>  </apply>  <apply>  <divide/>  <apply>  <times/>  <ci> k1 </ci>  <ci> lac </ci>  </apply>  <ci> K\_l </ci>  </apply>  <apply>  <divide/>  <apply>  <times/>  <ci> k2 </ci>  <ci> alac </ci>  </apply>  <ci> K\_a </ci>  </apply>  <apply>  <times/>  <ci> k44 </ci>  <ci> x1 </ci>  </apply>  <apply>  <times/>  <ci> k44 </ci>  <ci> x2 </ci>  </apply>  </apply>  </math> |

## 3 "V\_\_\_1\_\_\_+V\_\_\_2\_\_\_-V\_\_\_3\_\_\_-V\_\_\_4\_\_\_",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "-",   "fn": "subtract",   "args": [     {       "implicit": false,       "op": "-",       "fn": "subtract",       "args": [         {           "implicit": false,           "op": "+",           "fn": "add",           "args": [             {               "name": "V\_\_\_1\_\_\_"             },             {               "name": "V\_\_\_2\_\_\_"             }           ]         },         {           "name": "V\_\_\_3\_\_\_"         }       ]     },     {       "name": "V\_\_\_4\_\_\_"     }   ],   "comment": "" } | <math xmlns="http://www.w3.org/1998/Math/MathML">  <apply>  <minus/>  <apply>  <minus/>  <apply>  <plus/>  <ci> V\_\_\_1\_\_\_ </ci>  <ci> V\_\_\_2\_\_\_ </ci>  </apply>  <ci> V\_\_\_3\_\_\_ </ci>  </apply>  <ci> V\_\_\_4\_\_\_ </ci>  </apply>  </math> |

## 4 "1+K2\_H1\_D/10^(-6.3)+10^(-6.3)/K2\_H2\_D",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "+",   "fn": "add",   "args": [     {       "implicit": false,       "op": "+",       "fn": "add",       "args": [         {           "value": "1",           "valueType": "number"         },         {           "implicit": false,           "op": "/",           "fn": "divide",           "args": [             {               "name": "K2\_H1\_D"             },             {               "implicit": false,               "op": "^",               "fn": "pow",               "args": [                 {                   "value": "10",                   "valueType": "number"                 },                 {                   "content": {                     "implicit": false,                     "op": "-",                     "fn": "unaryMinus",                     "args": [                       {                         "value": "6.3",                         "valueType": "number"                       }                     ]                   }                 }               ]             }           ]         }       ]     },     {       "implicit": false,       "op": "/",       "fn": "divide",       "args": [         {           "implicit": false,           "op": "^",           "fn": "pow",           "args": [             {               "value": "10",               "valueType": "number"             },             {               "content": {                 "implicit": false,                 "op": "-",                 "fn": "unaryMinus",                 "args": [                   {                     "value": "6.3",                     "valueType": "number"                   }                 ]               }             }           ]         },         {           "name": "K2\_H2\_D"         }       ]     }   ],   "comment": "" } | <math xmlns="http://www.w3.org/1998/Math/MathML">  <apply>  <plus/>  <cn type="e-notation"> 1 <sep/> 0 </cn>  <apply>  <divide/>  <ci> K2\_H1\_D </ci>  <apply>  <power/>  <cn type="e-notation"> 1 <sep/> 1 </cn>  <cn type="e-notation"> -6.3 <sep/> 0 </cn>  </apply>  </apply>  <apply>  <divide/>  <apply>  <power/>  <cn type="e-notation"> 1 <sep/> 1 </cn>  <cn type="e-notation"> -6.3 <sep/> 0 </cn>  </apply>  <ci> K2\_H2\_D </ci>  </apply>  </apply>  </math> |

## 5 "alf\_pH\_D\*(1+NAD/Kd\_NAD\_D+NADH/Kd\_NADH\_D)+bet\_pH\_D\*(Hol/Kd\_Hol\_D+Hol\*NAD/Kd\_NAD\_Hol\_D/Kd\_NAD\_D)+gam\_pH\_D\*(NADH\*Hal/Kd\_Hal\_NADH\_D/Kd\_Hal\_D+Hal/Kd\_Hal\_D+NAD\*Hal/Kd\_Hal\_NAD\_D/Kd\_Hal\_D+His\*NADH/Kd\_NADH\_His\_D/Kd\_NADH\_D+His/Kd\_His\_D)",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "+",   "fn": "add",   "args": [     {       "implicit": false,       "op": "+",       "fn": "add",       "args": [         {           "implicit": false,           "op": "\*",           "fn": "multiply",           "args": [             {               "name": "alf\_pH\_D"             },             {               "content": {                 "implicit": false,                 "op": "+",                 "fn": "add",                 "args": [                   {                     "implicit": false,                     "op": "+",                     "fn": "add",                     "args": [                       {                         "value": "1",                         "valueType": "number"                       },                       {                         "implicit": false,                         "op": "/",                         "fn": "divide",                         "args": [                           { 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                                  },                                   {                                     "name": "Hal"                                   }                                 ]                               },                               {                                 "name": "Kd\_Hal\_NAD\_D"                               }                             ]                           },                           {                             "name": "Kd\_Hal\_D"                           }                         ]                       }                     ]                   },                   {                     "implicit": false,                     "op": "/",                     "fn": "divide",                     "args": [                       {                         "implicit": false,                         "op": "/",                         "fn": "divide",                         "args": [                           { 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                  {                     "name": "Kd\_His\_D"                   }                 ]               }             ]           }         }       ]     }   ],   "comment": "" } | <math xmlns="http://www.w3.org/1998/Math/MathML">  <apply>  <plus/>  <apply>  <times/>  <ci> alf\_pH\_D </ci>  <apply>  <plus/>  <cn type="e-notation"> 1 <sep/> 0 </cn>  <apply>  <divide/>  <ci> NAD </ci>  <ci> Kd\_NAD\_D </ci>  </apply>  <apply>  <divide/>  <ci> NADH </ci>  <ci> Kd\_NADH\_D </ci>  </apply>  </apply>  </apply>  <apply>  <times/>  <ci> bet\_pH\_D </ci>  <apply>  <plus/>  <apply>  <divide/>  <ci> Hol </ci>  <ci> Kd\_Hol\_D </ci>  </apply>  <apply>  <divide/>  <apply>  <divide/>  <apply>  <times/>  <ci> Hol </ci>  <ci> NAD </ci>  </apply>  <ci> Kd\_NAD\_Hol\_D </ci>  </apply>  <ci> Kd\_NAD\_D </ci>  </apply>  </apply>  </apply>  <apply>  <times/>  <ci> gam\_pH\_D </ci>  <apply>  <plus/>  <apply>  <divide/>  <apply>  <divide/>  <apply>  <times/>  <ci> NADH </ci>  <ci> Hal </ci>  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## 6 "(1+L\_dm\*F\_dm^(n-1)\*H\_dm^n)/(1+L\_dm\*(F\_dm\*H\_dm)^n)",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "/",   "fn": "divide",   "args": [     {       "content": {         "implicit": false,         "op": "+",         "fn": "add",         "args": [           {             "value": "1",             "valueType": "number"           },           {             "implicit": false,             "op": "\*",             "fn": "multiply",             "args": [               {                 "implicit": false,                 "op": "\*",                 "fn": "multiply",                 "args": [                   {                     "name": "L\_dm"                   },                   {                     "implicit": false,                     "op": "^",                     "fn": "pow",                     "args": [                       {                         "name": "F\_dm"                       },                       {                         "content": {                           "implicit": false,                           "op": "-",                           "fn": "subtract",                           "args": [                             {                               "name": "n"                             },                             {                               "value": "1",                               "valueType": "number"                             }                           ]                         }                       }                     ]                   }                 ]               },               {                 "implicit": false,                 "op": "^",                 "fn": "pow",                 "args": [                   {                     "name": "H\_dm"                   },                   {                     "name": "n"                   }                 ]               }             ]           }         ]       }     },     {       "content": {         "implicit": false,         "op": "+",         "fn": "add",         "args": [           {             "value": "1",             "valueType": "number"           },           {             "implicit": false,             "op": "\*",             "fn": "multiply",             "args": [               {                 "name": "L\_dm"               },               {                 "implicit": false,                 "op": "^",                 "fn": "pow",                 "args": [                   {                     "content": {                       "implicit": false,                       "op": "\*",                       "fn": "multiply",                       "args": [                         {                           "name": "F\_dm"                         },                         {                           "name": "H\_dm"                         }                       ]                     }                   },                   {                     "name": "n"                   }                 ]               }             ]           }         ]       }     }   ],   "comment": "" } | <math xmlns="http://www.w3.org/1998/Math/MathML">  <apply>  <divide/>  <apply>  <plus/>  <cn type="e-notation"> 1 <sep/> 0 </cn>  <apply>  <times/>  <ci> L\_dm </ci>  <apply>  <power/>  <ci> F\_dm </ci>  <apply>  <minus/>  <ci> n </ci>  <cn type="e-notation"> 1 <sep/> 0 </cn>  </apply>  </apply>  <apply>  <power/>  <ci> H\_dm </ci>  <ci> n </ci>  </apply>  </apply>  </apply>  <apply>  <plus/>  <cn type="e-notation"> 1 <sep/> 0 </cn>  <apply>  <times/>  <ci> L\_dm </ci>  <apply>  <power/>  <apply>  <times/>  <ci> F\_dm </ci>  <ci> H\_dm </ci>  </apply>  <ci> n </ci>  </apply>  </apply>  </apply>  </apply>  </math> |

## 7 "V\_\_\_5\_\_\_\*2.000-V\_\_\_7\_\_\_",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "-",   "fn": "subtract",   "args": [     {       "implicit": false,       "op": "\*",       "fn": "multiply",       "args": [         {           "name": "V\_\_\_5\_\_\_"         },         {           "value": "2.000",           "valueType": "number"         }       ]     },     {       "name": "V\_\_\_7\_\_\_"     }   ],   "comment": "" } | <math xmlns="http://www.w3.org/1998/Math/MathML">  <apply>  <minus/>  <apply>  <times/>  <ci> V\_\_\_5\_\_\_ </ci>  <cn type="e-notation"> 2 <sep/> 0 </cn>  </apply>  <ci> V\_\_\_7\_\_\_ </ci>  </apply>  </math> |

## 8 "SDH\*((kf\_SDH/(1+Sal/Ki\_Sal\_SDH))\*Suc\_SDH\*Q\_SDH-kr\_SDH\*Fum\_SDH\*QH2\_SDH)/(1+Suc\_SDH+Q\_SDH\*Km\_i\_Suc\_SDH/Kd\_es\_Suc\_SDH+Suc\_SDH\*Q\_SDH+Fum\_SDH+Km\_Fum\_SDH\*QH2\_SDH/Kd\_ef\_Fum\_SDH+Fum\_SDH\*QH2\_SDH)",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "/",   "fn": "divide",   "args": [     {       "implicit": false,       "op": "\*",       "fn": "multiply",       "args": [         {           "name": "SDH"         },         {           "content": {             "implicit": false,             "op": "-",             "fn": "subtract",             "args": [               {                 "implicit": false,                 "op": "\*",                 "fn": "multiply",                 "args": [                   {                     "implicit": false,                     "op": "\*",                     "fn": "multiply",                     "args": [                       {                         "content": {                           "implicit": false,                           "op": "/",                           "fn": "divide",                           "args": [                             {                               "name": "kf\_SDH"                             },                             {                               "content": {                                 "implicit": false,                                 "op": "+",                                 "fn": "add",                                 "args": [                                   {                                     "value": "1",                                     "valueType": "number"                                   },                                   {                                     "implicit": false,                                     "op": "/",                                     "fn": "divide",                                     "args": [                                       {                                         "name": "Sal"                                       },                                       {                                         "name": "Ki\_Sal\_SDH"                                       }                                     ]                                   }                                 ]                               }                             }                           ]                         }                       },                       {                         "name": "Suc\_SDH"                       }                     ]                   },                   {                     "name": "Q\_SDH"                   }                 ]               },               {                 "implicit": false,                 "op": "\*",                 "fn": "multiply",                 "args": [                   {                     "implicit": false,                     "op": "\*",                     "fn": "multiply",                     "args": [                       {                         "name": "kr\_SDH"                       },                       {                         "name": "Fum\_SDH"                       }                     ]                   },                   {                     "name": "QH2\_SDH"                   }                 ]               }             ]           }         }       ]     },     {       "content": {         "implicit": false,         "op": "+",         "fn": "add",         "args": [           {             "implicit": false,             "op": "+",             "fn": "add",             "args": [               {                 "implicit": false,                 "op": "+",                 "fn": "add",                 "args": [                   {                     "implicit": false,                     "op": "+",                     "fn": "add",                     "args": [                       {                         "implicit": false,                         "op": "+",                         "fn": "add",                         "args": [                           {                             "implicit": false,                             "op": "+",                             "fn": "add",                             "args": [                               {                                 "value": "1",                                 "valueType": "number"                               },                               {                                 "name": "Suc\_SDH"                               }                             ]                           },                           {                             "implicit": false,                             "op": "/",                             "fn": "divide",                             "args": [                               {                                 "implicit": false,                                 "op": "\*",                                 "fn": "multiply",                                 "args": [                                   {                                     "name": "Q\_SDH"                                   },                                   {                                     "name": "Km\_i\_Suc\_SDH"                                   }                                 ]                               },                               {                                 "name": "Kd\_es\_Suc\_SDH"                               }                             ]                           }                         ]                       },                       {                         "implicit": false,                         "op": "\*",                         "fn": "multiply",                         "args": [                           {                             "name": "Suc\_SDH"                           },                           {                             "name": "Q\_SDH"                           }                         ]                       }                     ]                   },                   {                     "name": "Fum\_SDH"                   }                 ]               },               {                 "implicit": false,                 "op": "/",                 "fn": "divide",                 "args": [                   {                     "implicit": false,                     "op": "\*",                     "fn": "multiply",                     "args": [                       {                         "name": "Km\_Fum\_SDH"                       },                       {                         "name": "QH2\_SDH"                       }                     ]                   },                   {                     "name": "Kd\_ef\_Fum\_SDH"                   }                 ]               }             ]           },           {             "implicit": false,             "op": "\*",             "fn": "multiply",             "args": [               {                 "name": "Fum\_SDH"               },               {                 "name": "QH2\_SDH"               }             ]           }         ]       }     }   ],   "comment": "" } | <math xmlns="http://www.w3.org/1998/Math/MathML">  <apply>  <divide/>  <apply>  <times/>  <ci> SDH </ci>  <apply>  <minus/>  <apply>  <times/>  <apply>  <divide/>  <ci> kf\_SDH </ci>  <apply>  <plus/>  <cn type="e-notation"> 1 <sep/> 0 </cn>  <apply>  <divide/>  <ci> Sal </ci>  <ci> Ki\_Sal\_SDH </ci>  </apply>  </apply>  </apply>  <ci> Suc\_SDH </ci>  <ci> Q\_SDH </ci>  </apply>  <apply>  <times/>  <ci> kr\_SDH </ci>  <ci> Fum\_SDH </ci>  <ci> QH2\_SDH </ci>  </apply>  </apply>  </apply>  <apply>  <plus/>  <cn type="e-notation"> 1 <sep/> 0 </cn>  <ci> Suc\_SDH </ci>  <apply>  <divide/>  <apply>  <times/>  <ci> Q\_SDH </ci>  <ci> Km\_i\_Suc\_SDH </ci>  </apply>  <ci> Kd\_es\_Suc\_SDH </ci>  </apply>  <apply>  <times/>  <ci> Suc\_SDH </ci>  <ci> Q\_SDH </ci>  </apply>  <ci> Fum\_SDH </ci>  <apply>  <divide/>  <apply>  <times/>  <ci> Km\_Fum\_SDH </ci>  <ci> QH2\_SDH </ci>  </apply>  <ci> Kd\_ef\_Fum\_SDH </ci>  </apply>  <apply>  <times/>  <ci> Fum\_SDH </ci>  <ci> QH2\_SDH </ci>  </apply>  </apply>  </apply>  </math> |

## 9 "1/v\_mix",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "/",   "fn": "divide",   "args": [     {       "value": "1",       "valueType": "number"     },     {       "name": "v\_mix"     }   ],   "comment": "" } | <math xmlns="http://www.w3.org/1998/Math/MathML">  <apply>  <divide/>  <cn type="e-notation"> 1 <sep/> 0 </cn>  <ci> v\_mix </ci>  </apply>  </math> |

## 10 "V1\*k2\*(A1-A2)",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "\*",   "fn": "multiply",   "args": [     {       "implicit": false,       "op": "\*",       "fn": "multiply",       "args": [         {           "name": "V\_1"         },         {           "name": "k2"         }       ]     },     {       "content": {         "implicit": false,         "op": "-",         "fn": "subtract",         "args": [           {             "name": "A1"           },           {             "name": "A2"           }         ]       }     }   ],   "comment": "" } | <math xmlns="http://www.w3.org/1998/Math/MathML">  <apply>  <times/>  <ci> V\_1 </ci>  <ci> k2 </ci>  <apply>  <minus/>  <ci> A1 </ci>  <ci> A2 </ci>  </apply>  </apply>  </math> |

## 11 "t/60",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "/",   "fn": "divide",   "args": [     {       "name": "t"     },     {       "value": "60",       "valueType": "number"     }   ],   "comment": "" } | <math xmlns="http://www.w3.org/1998/Math/MathML">  <apply>  <divide/>  <ci> t </ci>  <cn type="e-notation"> 6 <sep/> 1 </cn>  </apply>  </math> |

## 12 "k\*(S-X1)/(1+X6^n/Ki^n)",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "/",   "fn": "divide",   "args": [     {       "implicit": false,       "op": "\*",       "fn": "multiply",       "args": [         {           "name": "k"         },         {           "content": {             "implicit": false,             "op": "-",             "fn": "subtract",             "args": [               {                 "name": "S"               },               {                 "name": "X1"               }             ]           }         }       ]     },     {       "content": {         "implicit": false,         "op": "+",         "fn": "add",         "args": [           {             "value": "1",             "valueType": "number"           },           {             "implicit": false,             "op": "/",             "fn": "divide",             "args": [               {                 "implicit": false,                 "op": "^",                 "fn": "pow",                 "args": [                   {                     "name": "X6"                   },                   {                     "name": "n"                   }                 ]               },               {                 "implicit": false,                 "op": "^",                 "fn": "pow",                 "args": [                   {                     "name": "Ki"                   },                   {                     "name": "n"                   }                 ]               }             ]           }         ]       }     }   ],   "comment": "" } | <apply>  <divide/>  <apply>  <times/>  <ci> k </ci>  <apply>  <minus/>  <ci> S </ci>  <ci> X1 </ci>  </apply>  </apply>  <apply>  <plus/>  <cn type="e-notation"> 1 <sep/> 0 </cn>  <apply>  <divide/>  <apply>  <power/>  <ci> X6 </ci>  <ci> n </ci>  </apply>  <apply>  <power/>  <ci> Ki </ci>  <ci> n </ci>  </apply>  </apply>  </apply>  </apply> |

## 13 "23\*s\_4\*exp(d\*12)",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "\*",   "fn": "multiply",   "args": [     {       "implicit": false,       "op": "\*",       "fn": "multiply",       "args": [         {           "value": "23",           "valueType": "number"         },         {           "name": "s\_4"         }       ]     },     {       "fn": {         "name": "exp"       },       "args": [         {           "implicit": false,           "op": "\*",           "fn": "multiply",           "args": [             {               "name": "d"             },             {               "value": "12",               "valueType": "number"             }           ]         }       ]     }   ],   "comment": "" } | <apply>  <times/>  <cn type="e-notation"> 2.3 <sep/> 1 </cn>  <ci> s\_4 </ci>  <apply>  <exp/>  <apply>  <times/>  <ci> d </ci>  <cn type="e-notation"> 1.2 <sep/> 1 </cn>  </apply>  </apply>  </apply> |

## 14 "rrr\*pow(rrr, q)",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "\*",   "fn": "multiply",   "args": [     {       "name": "rrr"     },     {       "fn": {         "name": "pow"       },       "args": [         {           "name": "rrr"         },         {           "name": "q"         }       ]     }   ],   "comment": "" } | <apply>  <times/>  <ci> rrr </ci>  <apply>  <power/>  <ci> rrr </ci>  <ci> q </ci>  </apply>  </apply> |

## 15 "45\*min2(eee\*33, k\_1)",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "\*",   "fn": "multiply",   "args": [     {       "value": "45",       "valueType": "number"     },     {       "fn": {         "name": "min2"       },       "args": [         {           "implicit": false,           "op": "\*",           "fn": "multiply",           "args": [             {               "name": "eee"             },             {               "value": "33",               "valueType": "number"             }           ]         },         {           "name": "k\_1"         }       ]     }   ],   "comment": "" } | <apply>  <times/>  <cn type="e-notation"> 4.5 <sep/> 1 </cn>  <apply>  <ci> min2 </ci>  <apply>  <times/>  <ci> eee </ci>  <cn type="e-notation"> 3.3 <sep/> 1 </cn>  </apply>  <ci> k\_1 </ci>  </apply>  </apply> |

## 16 "koff\*min3(1,fun1,fun2)",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "\*",   "fn": "multiply",   "args": [     {       "name": "koff"     },     {       "fn": {         "name": "min3"       },       "args": [         {           "value": "1",           "valueType": "number"         },         {           "name": "fun1"         },         {           "name": "fun2"         }       ]     }   ],   "comment": "" } | <apply>  <times/>  <ci> koff </ci>  <apply>  <ci> min3 </ci>  <cn type="e-notation"> 1 <sep/> 0 </cn>  <ci> fun1 </ci>  <ci> fun2 </ci>  </apply>  </apply> |

## 17 "k0\*sin(t)",

|  |  |
| --- | --- |
| {   "implicit": false,   "op": "\*",   "fn": "multiply",   "args": [     {       "name": "k0"     },     {       "fn": {         "name": "sin"       },       "args": [         {           "name": "t"         }       ]     }   ],   "comment": "" | <apply>  <times/>  <ci> k0 </ci>  <apply>  <sin/>  <ci> t </ci>  </apply>  </apply> |

## 18 "sqrt(e,r)",

|  |  |
| --- | --- |
| {   "fn": {     "name": "sqrt"   },   "args": [     {       "name": "e"     },     {       "name": "r"     }   ],   "comment": "" } | <apply>  <ci> sqrt </ci>  <ci> e </ci>  <ci> r </ci>  </apply> |

## 19 "abs(-ppp)"

|  |  |
| --- | --- |
| {   "fn": {     "name": "abs"   },   "args": [     {       "implicit": false,       "op": "-",       "fn": "unaryMinus",       "args": [         {           "name": "ppp"         }       ]     }   ],   "comment": "" } | <apply>  <abs/>  <apply>  <minus/>  <ci> ppp </ci>  </apply>  </apply> |