

Sample MoPiX models

Extracted from <https://mopix2.appspot.com/>

Rotating rectangle

```
<apply><and/>
<apply><eq/><apply><mo>y</mo><ci>object_1</ci><cn>0</cn></apply><cn>185.45</cn></ap
ply>
<apply><eq/><apply><mo>x</mo><ci>object_1</ci><cn>0</cn></apply><cn>268.75</cn></ap
ply>
<apply><eq/><apply><mo>rotation</mo><ci>object_1</ci><ci>t</ci></apply><apply><times/><
ci>t</ci><cn>3</cn></apply></apply>
<apply><eq/><apply><mo>width</mo><ci>object_1</ci><ci>t</ci></apply><cn>200</cn></appl
y>
<apply><eq/><ci>releaseTime</ci><cn>75</cn></apply>
</apply>
```

Average bouncing balls

```
<apply><and/>
<apply><eq/><apply><mo>blueColour</mo><ci>object_9</ci><ci>t</ci></apply><cn>100</cn>
</apply>
<apply><eq/><apply><mo>appearance</mo><ci>object_9</ci><ci>t</ci></apply><ci>Circle</ci>
></apply>
<apply><eq/><apply><mo>redColour</mo><ci>object_9</ci><ci>t</ci></apply><cn>100</cn><
/apply>
<apply><eq/><apply><mo>amIHittingGround</mo><ci>object_9</ci><ci>t</ci></apply><apply>
<and/><apply><leq/><apply><mo>y</mo><ci>object_9</ci><ci>t</ci></apply><apply><divide/>
<apply><mo>height</mo><ci>object_9</ci><ci>t</ci></apply><cn>2</cn></apply></apply><ap
ply><lt/><apply><mo>Vy</mo><ci>object_9</ci><ci>t</ci></apply><cn>0</cn></apply></apply>
></apply>
<apply><eq/><apply><mo>Ay</mo><ci>object_9</ci><ci>t</ci></apply><cn>-.098</cn></apply>
>
<apply><eq/><apply><mo>Vy</mo><ci>object_9</ci><cn>0</cn></apply><cn>0</cn></apply>
<apply><eq/><apply><mo>Vy</mo><ci>object_9</ci><ci>t</ci></apply><apply><plus/><apply>
><times/><apply><not/><apply><mo>amIHittingGround</mo><ci>object_9</ci><apply><minus/
><ci>t</ci><cn>1</cn></apply></apply></apply><apply><plus/><apply><mo>Vy</mo><ci>obje
ct_9</ci><apply><minus/><ci>t</ci><cn>1</cn></apply></apply><apply><mo>Ay</mo><ci>obj
ect_9</ci><apply><minus/><ci>t</ci><cn>1</cn></apply></apply></apply></apply><apply><ti
```

[illegible]

[illegible]

```

/cn>/apply>/apply><apply><times/><apply><mo>delta53</mo><ci>object_6</ci><ci>t</ci></
apply><cn>2</cn></apply></apply></apply>
<apply><eq/><apply><mo>greenColourPen</mo><ci>object_6</ci><ci>t</ci></apply><apply><
minus/><apply><mo>greenColourPen</mo><ci>object_6</ci><apply><minus/><ci>t</ci><cn>1
</cn></apply></apply><apply><times/><apply><mo>delta59</mo><ci>object_6</ci><ci>t</ci><
/apply><cn>2</cn></apply></apply></apply>
<apply><eq/><apply><mo>redColourPen</mo><ci>object_6</ci><ci>t</ci></apply><apply><mi
nus/><apply><mo>redColourPen</mo><ci>object_6</ci><apply><minus/><ci>t</ci><cn>1</cn
></apply></apply><apply><times/><apply><mo>delta47</mo><ci>object_6</ci><ci>t</ci></ap
ply><cn>2</cn></apply></apply></apply>
<apply><eq/><apply><mo>thicknessPen</mo><ci>object_6</ci><ci>t</ci></apply><cn>4</cn>
</apply>
<apply><eq/><apply><mo>penDown</mo><ci>object_6</ci><ci>t</ci></apply><apply><gt/><ci>
>t</ci><cn>1</cn></apply></apply>
<apply><eq/><apply><mo>x</mo><ci>object_6</ci><cn>0</cn></apply><cn>531.75</cn></ap
ply>
<apply><eq/><apply><mo>x</mo><ci>object_6</ci><ci>t</ci></apply><apply><divide/><apply
><plus/><apply><mo>x</mo><ci>object_4</ci><ci>t</ci></apply><apply><mo>x</mo><ci>obje
ct_9</ci><ci>t</ci></apply></apply><cn>2</cn></apply></apply>
<apply><eq/><apply><mo>y</mo><ci>object_6</ci><cn>0</cn></apply><cn>123.35</cn></ap
ply>
<apply><eq/><apply><mo>y</mo><ci>object_6</ci><ci>t</ci></apply><apply><divide/><apply
><plus/><apply><mo>y</mo><ci>object_4</ci><ci>t</ci></apply><apply><mo>y</mo><ci>obje
ct_9</ci><ci>t</ci></apply></apply><cn>2</cn></apply></apply>
<apply><eq/><ci>releaseTime</ci><cn>75</cn></apply>
</apply>

```

Rectangle with three cycles

```

<apply><and/>
<apply><eq/><apply><mo>y</mo><ci>object_15</ci><cn>0</cn></apply><cn>241.5</cn></ap
ply>
<apply><eq/><apply><mo>x</mo><ci>object_15</ci><cn>0</cn></apply><cn>227.75</cn></a
pply>
<apply><eq/><apply><mo>width</mo><ci>object_15</ci><ci>t</ci></apply><apply><plus/><ap
ply><times/><cn>50</cn><apply><sin/><ci>t</ci></apply></apply><cn>50</cn></apply></appl
y>
<apply><eq/><apply><mo>greenColour</mo><ci>object_15</ci><ci>t</ci></apply><apply><pl
us/><apply><times/><cn>50</cn><apply><sin/><apply><times/><cn>2</cn><ci>t</ci></apply>
</apply></apply><cn>50</cn></apply></apply>
<apply><eq/><apply><mo>height</mo><ci>object_15</ci><ci>t</ci></apply><cn>200</cn></a
pply>

```

$$\frac{\sin(50 \times \text{rotation}_{\text{object_15}} \times t)}{50} \times 3 \times t$$

Two animated objects with graphs

[illegible]

```
<apply><eq/><apply><mo>rotation</mo><ci>object_4</ci><ci>t</ci></apply><apply><plus/><a  
pply><times/><cn>50</cn></apply><sin/><apply><times/><cn>2</cn><ci>t</ci></apply></apply>  
></apply><cn>50</cn></apply></apply>  
<apply><eq/><apply><mo>height</mo><ci>object_4</ci><ci>t</ci></apply><apply><plus/><ap  
ply><times/><cn>50</cn></apply><sin/><apply><times/><cn>3</cn><ci>t</ci></apply></apply>  
</apply><cn>50</cn></apply></apply>  
<apply><eq/><apply><mo>appearance</mo><ci>object_4</ci><ci>t</ci></apply><ci>Circle</ci>  
></apply>  
<apply><eq/><apply><mo>blueColour</mo><ci>object_4</ci><ci>t</ci></apply><apply><plus/  
><apply><times/><cn>50</cn></apply><sin/><apply><times/><cn>3</cn><ci>t</ci></apply></a  
pply></apply><cn>50</cn></apply></apply>  
<apply><eq/><apply><mo>x</mo><ci>object_5</ci><cn>0</cn></apply><cn>324</cn></apply>  
>  
<apply><eq/><apply><mo>x</mo><ci>object_5</ci><ci>t</ci></apply><ci>t</ci></apply>  
<apply><eq/><apply><mo>blueColourPen</mo><ci>object_5</ci><ci>t</ci></apply><cn>100</  
cn></apply>  
<apply><eq/><apply><mo>y</mo><ci>object_5</ci><cn>0</cn></apply><cn>386.55</cn></ap  
ply>  
<apply><eq/><apply><mo>y</mo><ci>object_5</ci><ci>t</ci></apply><apply><plus/><apply><  
divide/><apply><mo>rotation</mo><ci>object_4</ci><ci>t</ci></apply><cn>4</cn></apply><cn  
>400</cn></apply></apply>  
<apply><eq/><apply><mo>thicknessPen</mo><ci>object_5</ci><ci>t</ci></apply><cn>4</cn>  
</apply>  
<apply><eq/><apply><mo>width</mo><ci>object_5</ci><ci>t</ci></apply><cn>5</cn></apply>  
<apply><eq/><apply><mo>penDown</mo><ci>object_5</ci><ci>t</ci></apply><apply><gt/><ci  
>t</ci><cn>1</cn></apply></apply>  
<apply><eq/><apply><mo>height</mo><ci>object_5</ci><ci>t</ci></apply><cn>5</cn></apply>  
>  
<apply><eq/><apply><mo>appearance</mo><ci>object_5</ci><ci>t</ci></apply><ci>Circle</ci>  
></apply>  
<apply><eq/><apply><mo>x</mo><ci>object_12</ci><cn>0</cn></apply><cn>141</cn></appl  
y>  
<apply><eq/><apply><mo>x</mo><ci>object_12</ci><ci>t</ci></apply><ci>t</ci></apply>  
<apply><eq/><apply><mo>y</mo><ci>object_12</ci><cn>0</cn></apply><cn>392</cn></appl  
y>  
<apply><eq/><apply><mo>y</mo><ci>object_12</ci><ci>t</ci></apply><apply><plus/><apply>  
<divide/><apply><mo>rotation</mo><ci>object_1</ci><ci>t</ci></apply><cn>4</cn></apply><c  
n>400</cn></apply></apply>  
<apply><eq/><apply><mo>thicknessPen</mo><ci>object_12</ci><ci>t</ci></apply><cn>4</cn  
></apply>  
<apply><eq/><apply><mo>width</mo><ci>object_12</ci><ci>t</ci></apply><cn>5</cn></apply>  
>  
<apply><eq/><apply><mo>penDown</mo><ci>object_12</ci><ci>t</ci></apply><apply><gt/><  
ci>t</ci><cn>1</cn></apply></apply>
```

```
<apply><eq/><apply><mo>greenColourPen</mo><ci>object_12</ci><ci>t</ci></apply><cn>10
0</cn></apply>
<apply><eq/><apply><mo>height</mo><ci>object_12</ci><ci>t</ci></apply><cn>5</cn></appl
y>
<apply><eq/><apply><mo>appearance</mo><ci>object_12</ci><ci>t</ci></apply><ci>Circle</
ci></apply>
<apply><eq/><ci>releaseTime</ci><cn>75</cn></apply>
</apply>
```

Path around a pond

```
<apply><and/>
<apply
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gbgdhegmh jcadmejdogbgcgphggfcagphccagcgfgmgphh dmcpejdocahegigfcadmejdogdgfgohegf
hcdmcp ejdocagpggcagbgogp hegigfhccocadmcpecdo"><eq/><apply><mo>x</mo><ci>object_1
</ci><ci>t</ci></apply><apply><mo>x</mo><ci>object_2</ci><ci>t</ci></apply></apply>
<apply
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hedndbdad ecahdhcgddnccgihehehadkcpcpgmgpgdgbgmigiph dhedkdidididicphfglcogbgdcogm
glgmcoengpfagjfidccpgbgcgphggfc ofaeohccc ahhgjgehegidndbdcdccagcgphcgegf hcdndadodm
cpecdo"><eq/><apply><mo>y</mo><ci>object_1</ci><ci>t</ci></apply><apply><minus/><appl
y><mo>y0</mo><ci>object_2</ci><ci>t</ci></apply><apply><ToPointY/><cn>180</cn><apply>
<mo>width</mo><ci>object_1</ci><ci>t</ci></apply><apply><mo>height</mo><ci>object_1</c
i><ci>t</ci></apply><apply><mo>rotation</mo><ci>object_1</ci><ci>t</ci></apply><apply><m
o>appearance</mo><ci>object_1</ci><ci>t</ci></apply></apply></apply></apply>
<apply
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cogbgdcogmglgmcoengpfagjfidccphhgjgehegic ofaeohccc ahhgjgehegidndhdhcagcgphcgegf hcd
ndadocadmegepe ofecahdgjhkgfdndhdocl cadmcp egepe ofedodmcp ecdodmegepe ofecahdgjhkgf
dndhdodmec d d d d c c a d m c p e c d o d m c p e g e p e o f e d o d m e c d o c i h e g i g f c a d m e j d o h h g j g e h e g i d m c p e j d o c
a g p g g c a g b g o g p h e g i g f h c c a h a g m h f h d c a h e h h g p c a h f g o g j h e h d c o c j c a d m c p e c d o "><eq/><apply><
mo>width</mo><ci>object_1</ci><ci>t</ci></apply><apply><plus/><apply><mo>width</mo><c
i>object_2</ci><ci>t</ci></apply><cn>80</cn></apply></apply>
<apply><eq/><apply><mo>x</mo><ci>object_2</ci><cn>0</cn></apply><cn>569.0</cn></appl
y>
<apply
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hedkdidididicphfglcogbgdcogmglgmcoengpfagjfidccphegfh d h e c o h a g o g h c c c a h h g j g e h e g i d n d b d c
```

decagcgphcgegfghcdndadoca"><eq/><apply><mo>x</mo><ci>object_2</ci><ci>t</ci></apply><ci>t</ci></apply>
<apply><eq/><apply><mo>y</mo><ci>object_2</ci><cn>0</cn></apply><cn>192.0</cn></apply>
<apply><eq/><apply><mo>width</mo><ci>object_2</ci><cn>0</cn></apply><cn>317.0</cn></apply>
<apply
HTMLAppearance="dmeeldoenebelefaenefcaehfcepfdmejdcahhggegfhcdmcpejdoadmcpecdo"><eq/><apply><mo>width</mo><ci>object_2</ci><ci>t</ci></apply><ci>t</ci></apply>
<apply
HTMLAppearance="dmeeldoenebelefaenefcadmcpecdodmcpegepeofedodmegepeofecagdgpgmgphcdncddadadaggggcahdgjhgfdndcdodmeeldoecemffefdmcpcedo"><eq/><apply><mo>blueColour</mo><ci>object_2</ci><ci>t</ci></apply><cn>100</cn></apply>
<apply
HTMLAppearance="dmeeldoehjcadmejdohcgjghgihecahdgjgegfdmcpejdoadcagjhdcagbgmhhgbjhdcagkgpgjgogfgecahegpcagbgogpgegfhcchdcadmejdohgmfgghecahdgjgegfdmcpejdoadmejenehcagigfgjghgihedndidccahdhcgddnccgihehehadkcpcpgmgpgdgbgmigphdhdiddidicphfglcogbgdcogmglgmcoengpfagjfidccpgmgfgghecofaeohcccaghhggeghegidndbdedgcagcgphcgegfghcdndadodmcpecdo"><eq/><apply><mo>x</mo><ci>object_3</ci><ci>t</ci></apply><apply><minus/><apply><mo>x270</mo><ci>object_2</ci><ci>t</ci></apply><apply><ToPointX/><cn>90</cn><apply><mo>width</mo><ci>object_3</ci><ci>t</ci></apply><apply><mo>height</mo><ci>object_3</ci><ci>t</ci></apply><apply><mo>rotation</mo><ci>object_3</ci><ci>t</ci></apply><apply><mo>appearance</mo><ci>object_3</ci><ci>t</ci></apply></apply></apply></apply>
<apply
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<apply
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270</cn><apply><mo>width</mo><ci>object_4</ci><ci>t</ci></apply><apply><mo>height</mo>
><ci>object_4</ci><ci>t</ci></apply><apply><mo>rotation</mo><ci>object_4</ci><ci>t</ci></a
pply><apply><mo>appearance</mo><ci>object_4</ci><ci>t</ci></apply></apply></apply></ap
ply>
<apply
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ogdgfgohegfhcdmcpejdocagpggcagbgogphegigfhccocadmcpecd"><eq/><apply><mo>y</mo>
<ci>object_4</ci><ci>t</ci></apply><apply><mo>y</mo><ci>object_2</ci><ci>t</ci></apply></
apply>
<apply
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agcgphcgegfhcdndadocacihiegigfcadmejdogigfgjghgihedmcpejdocagpggcagbgogphegigfhccjcod
mcpecd"><eq/><apply><mo>height</mo><ci>object_4</ci><ci>t</ci></apply><apply><mo>he
ight</mo><ci>object_2</ci><ci>t</ci></apply></apply>
<apply
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hcdmcpejdocagpggcagbgogphegigfhccocadmcpecd"><eq/><apply><mo>x</mo><ci>object_5
</ci><ci>t</ci></apply><apply><mo>x</mo><ci>object_2</ci><ci>t</ci></apply></apply>
<apply
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ihedndbdadacahdhcgddnccgihehehadkcpcpgmgpgdgbgmigigphdhdkdidididicphfglcogbgdcogm
glgmcoengpfagjfidccpgcgfgmgphhcofaeohcccaghhgjehegidndbdcdacagcgphcgegfhcdndadod
mcpecd"><eq/><apply><mo>y</mo><ci>object_5</ci><ci>t</ci></apply><apply><minus/><ap
ply><mo>y180</mo><ci>object_2</ci><ci>t</ci></apply><apply><ToPointY/><cn>0</cn><appl
y><mo>width</mo><ci>object_5</ci><ci>t</ci></apply><apply><mo>height</mo><ci>object_5
</ci><ci>t</ci></apply><apply><mo>rotation</mo><ci>object_5</ci><ci>t</ci></apply><apply>
<mo>appearance</mo><ci>object_5</ci><ci>t</ci></apply></apply></apply></apply>
<apply
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ndadocadmegepeofecahdgjhkgfdndhdodclcadmcpegepeofedodmcpecdodmegepeofecahdgjhkgf
dndhdodmeccodccadmcpecdodmcpegepeofedodmeccocihegigfcadmejdohhgjehegidmcpejdoc
agpggcagbgogphegigfhccahagmhfhdcadhehghgpcahfgogjhehdccjcadmcpecd"><eq/><apply><
mo>width</mo><ci>object_5</ci><ci>t</ci></apply><apply><plus/><apply><mo>width</mo><c
i>object_2</ci><ci>t</ci></apply><cn>80</cn></apply></apply>
<apply><eq/><ci>releaseTime</ci><cn>75</cn></apply>
</apply>

Falling upward

```
<apply><and/>
<apply><eq/><apply><mo>y</mo><ci>object_3</ci><cn>0</cn></apply><cn>219.45</cn></ap
ply>
<apply><eq/><apply><mo>y</mo><ci>object_3</ci><ci>t</ci></apply><apply><plus/><apply><
mo>y</mo><ci>object_3</ci><apply><minus/><ci>t</ci><cn>1</cn></apply></apply><apply><
mo>Vy</mo><ci>object_3</ci><ci>t</ci></apply></apply></apply>
<apply><eq/><apply><mo>x</mo><ci>object_3</ci><cn>0</cn></apply><cn>305.75</cn></ap
ply>
<apply><eq/><apply><mo>Vy</mo><ci>object_3</ci><cn>0</cn></apply><cn>0</cn></apply>
<apply><eq/><apply><mo>Vy</mo><ci>object_3</ci><ci>t</ci></apply><apply><plus/><apply>
<mo>Vy</mo><ci>object_3</ci><apply><minus/><ci>t</ci><cn>1</cn></apply></apply><appl
y><mo>Ay</mo><ci>object_3</ci><ci>t</ci></apply></apply></apply>
<apply><eq/><apply><mo>Ay</mo><ci>object_3</ci><ci>t</ci></apply><cn>.098</cn></apply>
>
<apply><eq/><ci>releaseTime</ci><cn>75</cn></apply>
</apply>
```

Growing rectangle

```
<apply><and/>
<apply><eq/><apply><mo>y</mo><ci>object_1</ci><cn>0</cn></apply><cn>212.5</cn></appl
y>
<apply><eq/><apply><mo>x</mo><ci>object_1</ci><cn>0</cn></apply><cn>340.7</cn></appl
y>
<apply><eq/><apply><mo>width</mo><ci>object_1</ci><ci>t</ci></apply><apply><times/><ci>
t</ci><cn>2</cn></apply></apply>
<apply><eq/><apply><mo>height</mo><ci>object_1</ci><ci>t</ci></apply><ci>t</ci></apply>
<apply><eq/><ci>releaseTime</ci><cn>75</cn></apply>
</apply>
```

Rotating ellipse

```
<apply><and/>
<apply><eq/><apply><mo>y</mo><ci>object_1</ci><cn>0</cn></apply><cn>317.5</cn></appl
y>
<apply><eq/><apply><mo>x</mo><ci>object_1</ci><cn>0</cn></apply><cn>283.75</cn></ap
ply>
```

```

<apply><eq/><apply><mo>transparency</mo><ci>object_1</ci><ci>t</ci></apply><cn>50</cn>
</apply>
<apply><eq/><apply><mo>redColour</mo><ci>object_1</ci><ci>t</ci></apply><cn>100</cn><
/apply>
<apply><eq/><apply><mo>y</mo><ci>object_2</ci><cn>0</cn></apply><cn>321.5</cn></appl
y>
<apply><eq/><apply><mo>x</mo><ci>object_2</ci><cn>0</cn></apply><cn>379.75</cn></ap
ply>
<apply><eq/><apply><mo>rotation</mo><ci>object_2</ci><ci>t</ci></apply><apply><times/><
ci>t</ci><cn>3</cn></apply></apply>
<apply><eq/><apply><mo>width</mo><ci>object_2</ci><ci>t</ci></apply><cn>200</cn></appl
y>
<apply><eq/><apply><mo>appearance</mo><ci>object_2</ci><ci>t</ci></apply><ci>Circle</ci>
</apply>
<apply><eq/><apply><mo>blueColour</mo><ci>object_2</ci><ci>t</ci></apply><cn>100</cn>
</apply>
<apply><eq/><apply><mo>transparency</mo><ci>object_2</ci><ci>t</ci></apply><cn>50</cn>
</apply>
<apply><eq/><ci>releaseTime</ci><cn>75</cn></apply>
</apply>

```

Juggler scenario

```

<apply><and/>
<apply><eq/><apply><mo>y</mo><ci>object_5</ci><cn>0</cn></apply><cn>126.45</cn></ap
ply>
<apply><eq/><apply><mo>x</mo><ci>object_5</ci><cn>0</cn></apply><cn>708.75</cn></ap
ply>
<apply><eq/><apply><mo>appearance</mo><ci>object_5</ci><ci>t</ci></apply><ci>t</ci></a
pply>
<apply><eq/><apply><mo>x</mo><ci>object_3</ci><cn>0</cn></apply><cn>355.75</cn></ap
ply>
<apply><eq/><apply><mo>x</mo><ci>object_3</ci><ci>t</ci></apply><apply><plus/><apply><
mo>x</mo><ci>object_3</ci><apply><minus/><ci>t</ci><cn>1</cn></apply></apply><apply><
mo>Vx</mo><ci>object_3</ci><ci>t</ci></apply></apply></apply>
<apply><eq/><apply><mo>appearance</mo><ci>object_3</ci><ci>t</ci></apply><ci>Circle</ci>
</apply>
<apply><eq/><apply><mo>horizontalDistanceWithOther1</mo><ci>object_3</ci><ci>t</ci></ap
ply><apply><abs/><apply><minus/><apply><mo>x</mo><ci>object_3</ci><ci>t</ci></apply><
apply><mo>x</mo><ci>object_1</ci><ci>t</ci></apply></apply></apply></apply>
<apply><eq/><apply><mo>isOverlappingHorizontallyWithOther1</mo><ci>object_3</ci><ci>t</
ci></apply><apply><leq/><apply><mo>horizontalDistanceWithOther1</mo><ci>object_3</ci><
ci>t</ci></apply><apply><divide/><apply><plus/><apply><mo>width</mo><ci>object_3</ci><ci>

```

[illegible]

$$\frac{Ay}{\text{amlHittingGround} - .098}$$

$$\frac{y}{\text{height}^2}$$

$$\frac{\text{horizontalDistanceWithOther2} - x}{x}$$

$$\frac{\text{isOverlappingHorizontallyWithOther2} - \text{horizontalDistanceWithOther2}}{\text{width}}$$

$$\frac{\text{verticalDistanceWithOther2} - y}{y}$$

$$\frac{\text{isOverlappingVerticallyWithOther2} - \text{verticalDistanceWithOther2}}{\text{height}}$$

$$\text{isOverlappingWithOther2} \text{ and } \text{isOverlappingHorizontallyWithOther2} \text{ and } \text{isOverlappingVerticallyWithOther2}$$

$$\text{isOverlappingWithOther} \text{ or } \text{isOverlappingWithOther1} \text{ or } \text{isOverlappingWithOther2}$$

$$\frac{\text{Vyracketground}}{\text{times}} - \text{amlHittingGround} - \text{isOverlappingWithOther} - \text{Vyracket} - \text{isOverlappingWithOther} - \text{Vy} - \text{Ay} - \text{Vxracket}$$

```

</cn></apply></apply><apply><times/><apply><mo>Vx</mo><ci>object_3</ci><apply><minus
/><ci>t</ci><cn>1</cn></apply></apply><cn>1</cn></apply></apply></apply>
<apply><eq/><apply><mo>Vxrocketaside</mo><ci>object_3</ci><ci>t</ci></apply><apply><ti
mes/><apply><and/><apply><not/><apply><mo>amlHittingASide</mo><ci>object_3</ci><appl
y><minus/><ci>t</ci><cn>1</cn></apply></apply></apply><apply><not/><apply><mo>isOverla
ppingWithOther</mo><ci>object_3</ci><apply><minus/><ci>t</ci><cn>1</cn></apply></apply
></apply></apply><apply><plus/><apply><mo>Vx</mo><ci>object_3</ci><apply><minus/><ci
>t</ci><cn>1</cn></apply></apply><apply><mo>Ax</mo><ci>object_3</ci><apply><minus/><
ci>t</ci><cn>1</cn></apply></apply></apply></apply></apply>
<apply><eq/><apply><mo>redColour</mo><ci>object_3</ci><ci>t</ci></apply><cn>100</cn><
/apply>
<apply><eq/><apply><mo>y</mo><ci>object_2</ci><cn>0</cn></apply><cn>90.5</cn></apply
>
<apply><eq/><apply><mo>x</mo><ci>object_2</ci><cn>0</cn></apply><cn>458.75</cn></ap
ply>
<apply><eq/><apply><mo>width</mo><ci>object_2</ci><ci>t</ci></apply><cn>50</cn></apply
>
<apply><eq/><apply><mo>height</mo><ci>object_2</ci><ci>t</ci></apply><cn>10</cn></appl
y>
<apply><eq/><apply><mo>redColour</mo><ci>object_2</ci><ci>t</ci></apply><cn>40</cn></
apply>
<apply><eq/><apply><mo>greenColour</mo><ci>object_2</ci><ci>t</ci></apply><cn>20</cn>
</apply>
<apply><eq/><apply><mo>y</mo><ci>object_1</ci><cn>0</cn></apply><cn>86.5</cn></apply
>
<apply><eq/><apply><mo>x</mo><ci>object_1</ci><cn>0</cn></apply><cn>174.75</cn></ap
ply>
<apply><eq/><apply><mo>width</mo><ci>object_1</ci><ci>t</ci></apply><cn>50</cn></apply
>
<apply><eq/><apply><mo>height</mo><ci>object_1</ci><ci>t</ci></apply><cn>10</cn></appl
y>
<apply><eq/><apply><mo>redColour</mo><ci>object_1</ci><ci>t</ci></apply><cn>40</cn></
apply>
<apply><eq/><apply><mo>greenColour</mo><ci>object_1</ci><ci>t</ci></apply><cn>20</cn>
</apply>
<apply><eq/><ci>releaseTime</ci><cn>75</cn></apply>
</apply>

```

Toss ball

```

<apply><and/>
<apply><eq/><apply><mo>x</mo><ci>object_5</ci><cn>0</cn></apply><cn>137.75</cn></ap
ply>

```

[illegible]

```

<apply><eq/><apply><mo>penDown</mo><ci>object_6</ci><ci>t</ci></apply><apply><gt/><ci>t</ci><ci>1</cn></apply></apply>
<apply><eq/><apply><mo>appearance</mo><ci>object_6</ci><ci>t</ci></apply><ci>Circle</ci></apply>
<apply><eq/><ci>releaseTime</ci><cn>75</cn></apply>
</apply>

```

Three rotating rectangles

```

<apply><and/>
<apply><eq/><apply><mo>transparency</mo><ci>object_107</ci><ci>t</ci></apply><cn>50</cn></apply>
<apply><eq/><apply><mo>rotation</mo><ci>object_107</ci><ci>t</ci></apply><apply><times/><ci>t</ci><cn>5</cn></apply></apply>
<apply><eq/><apply><mo>width</mo><ci>object_107</ci><ci>t</ci></apply><cn>200</cn></apply>
<apply><eq/><apply><mo>blueColour</mo><ci>object_107</ci><ci>t</ci></apply><apply><minus/><ci>t</ci><cn>1</cn></apply></apply><apply><times/><apply><mo>delta53</mo><ci>object_107</ci><ci>t</ci></apply><cn>2</cn></apply></apply></apply>
<apply><eq/><apply><mo>delta59</mo><ci>object_107</ci><ci>t</ci></apply><apply><plus/><ci>t</ci><cn>118</cn></apply><cn>59</cn></apply><cn>-1</cn></apply><apply><times/><apply><geq/><ci>t</ci><cn>118</cn></apply><cn>59</cn></apply><cn>1</cn></apply></apply></apply>
<apply><eq/><apply><mo>delta53</mo><ci>object_107</ci><ci>t</ci></apply><apply><plus/><ci>t</ci><cn>106</cn></apply><cn>53</cn></apply><cn>-1</cn></apply><apply><times/><apply><geq/><ci>t</ci><cn>106</cn></apply><cn>53</cn></apply><cn>1</cn></apply></apply></apply>
<apply><eq/><apply><mo>delta47</mo><ci>object_107</ci><ci>t</ci></apply><apply><plus/><ci>t</ci><cn>94</cn></apply><cn>47</cn></apply><cn>-1</cn></apply><apply><times/><apply><geq/><ci>t</ci><cn>94</cn></apply><cn>47</cn></apply><cn>1</cn></apply></apply></apply>
<apply><eq/><apply><mo>x</mo><ci>object_107</ci><cn>0</cn></apply><cn>338.75</cn></apply>
<apply><eq/><apply><mo>y</mo><ci>object_107</ci><cn>0</cn></apply><cn>340.45</cn></apply>
<apply><eq/><apply><mo>transparency</mo><ci>object_105</ci><ci>t</ci></apply><cn>50</cn></apply>
<apply><eq/><apply><mo>rotation</mo><ci>object_105</ci><ci>t</ci></apply><apply><times/><ci>t</ci><cn>3</cn></apply></apply>
<apply><eq/><apply><mo>width</mo><ci>object_105</ci><ci>t</ci></apply><cn>200</cn></apply>

```


$\text{redColour} \times \text{object_105}$
 $\text{redColour} \times \text{object_105} - 1$
 $\text{redColour} \times \text{object_105} \times 2$
 $\text{redColour} \times \text{object_105} + 118 - 59$
 $\text{redColour} \times \text{object_105} + 118 - 59$
 $\text{redColour} \times \text{object_105} + 106 - 53$
 $\text{redColour} \times \text{object_105} + 94 - 47$
 $\text{redColour} \times \text{object_105} = 180.75$
 $\text{redColour} \times \text{object_105} = 340.45$
 $\text{rotation} \times \text{object_118} \times 7$
 $\text{greenColour} \times \text{object_118} - 1$
 $\text{greenColour} \times \text{object_118} \times 2$
 $\text{transparency} \times \text{object_118} = 50$
 $\text{width} \times \text{object_118} = 200$
 $\text{redColour} \times \text{object_118} + 118 - 59$
 $\text{redColour} \times \text{object_118} + 118 - 59$
 $\text{redColour} \times \text{object_118} + 106 - 53$
 $\text{redColour} \times \text{object_118} + 94 - 47$
 $\text{redColour} \times \text{object_118} = 494.75$

```

<apply><eq/><apply><mo>y</mo><ci>object_118</ci><cn>0</cn></apply><cn>340.45</cn></
apply>
<apply><eq/><apply><mo>bothZero</mo><ci>object_97</ci><ci>t</ci></apply><apply><plus/>
<apply><mo>bothZero</mo><ci>object_97</ci><apply><minus/><ci>t</ci><cn>1</cn></apply>
</apply><apply><not/><apply><neq/><apply><rem/><apply><mo>rotation</mo><ci>object_10
7</ci><ci>t</ci></apply><cn>360</cn></apply><apply><rem/><apply><mo>rotation</mo><ci>
object_105</ci><ci>t</ci></apply><cn>360</cn></apply></apply></apply></apply></apply>
<apply><eq/><apply><mo>appearance</mo><ci>object_97</ci><ci>t</ci></apply><apply><mo>
bothZero</mo><ci>object_97</ci><ci>t</ci></apply></apply>
<apply><eq/><apply><mo>x</mo><ci>object_97</ci><cn>0</cn></apply><cn>718.75</cn></a
pply>
<apply><eq/><apply><mo>y</mo><ci>object_97</ci><cn>0</cn></apply><cn>72.5</cn></appl
y>
<apply><eq/><ci>releaseTime</ci><cn>75</cn></apply>
</apply>

```

Four graphs

```

<apply><and/>
<apply><eq/><apply><mo>y</mo><ci>object_7</ci><cn>0</cn></apply><cn>314.3</cn></appl
y>
<apply><eq/><apply><mo>y</mo><ci>object_7</ci><ci>t</ci></apply><apply><plus/><apply><
divide/><apply><mo>Vx</mo><ci>object_3</ci><ci>t</ci></apply><cn>1</cn></apply><cn>40
0</cn></apply></apply>
<apply><eq/><apply><mo>blueColourPen</mo><ci>object_7</ci><ci>t</ci></apply><cn>50</c
n></apply>
<apply><eq/><apply><mo>redColourPen</mo><ci>object_7</ci><ci>t</ci></apply><cn>50</cn
></apply>
<apply><eq/><apply><mo>penDown</mo><ci>object_7</ci><ci>t</ci></apply><apply><gt/><ci>
t</ci><cn>1</cn></apply></apply>
<apply><eq/><apply><mo>appearance</mo><ci>object_7</ci><ci>t</ci></apply><ci>Circle</ci>
></apply>
<apply><eq/><apply><mo>blueColour</mo><ci>object_7</ci><ci>t</ci></apply><cn>50</cn><
/apply>
<apply><eq/><apply><mo>redColour</mo><ci>object_7</ci><ci>t</ci></apply><cn>50</cn></
apply>
<apply><eq/><apply><mo>width</mo><ci>object_7</ci><ci>t</ci></apply><cn>5</cn></apply>
<apply><eq/><apply><mo>height</mo><ci>object_7</ci><ci>t</ci></apply><cn>5</cn></apply>
>
<apply><eq/><apply><mo>x</mo><ci>object_7</ci><cn>0</cn></apply><cn>242</cn></apply>
>
<apply><eq/><apply><mo>x</mo><ci>object_7</ci><ci>t</ci></apply><ci>t</ci></apply>

```

```

<math>
\frac{y}{V_y} = \frac{\text{greenColourPen}}{\text{penDown}} \cdot \frac{1}{\text{appearance}} \cdot \frac{1}{\text{greenColour}} \cdot \frac{1}{\text{height}} \cdot \frac{1}{\text{width}} \cdot x


```

[illegible]

An impulsive triangle

[illegible]

[illegible]