

**Seminar demonstration files**

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**Animated graphics**

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With Acroread, **CTRL-L** switch  
between full screen and window mode

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## 1 – Introduction

- ➡ A kind of simple **animated graphics** can be easily obtained (at least with Acroread). Nevertheless, this feature is not very sophisticated, as we will not have real control on these animations<sup>a</sup>.
- ➡ It requires only to use the standard mechanism of **Seminar** for **overlays** (which in fact is based on the PSTricks one)<sup>b</sup>.
- ➡ But take care that, if this underlying mechanism is well adapted for this kind of simple animations, it is not at all optimized. This is not a problem for the paper version, as overlays are inhibited in this case, and as we can also keep easily only one step, but it can generate huge files for the screen versions, as all the material of the slide is included in each overlay, just putting it outside the visible region when this is not the required overlay<sup>c</sup>.

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<sup>a</sup>VT<sub>E</sub>X supported the animated GIF format, (see the file `animgif.pdf` in CTAN:systems/vtex/common/vtex-doc.zip) in its version 7, but announced new (proprietary) support of animated graphics in its version 8.

<sup>b</sup>We have modified it slightly to increase the default limit to 10 overlays, which was obviously not enough for animations.

<sup>c</sup>For technical explanations, see the pages 243–244 in Timothy VAN ZANDT and Denis GIROU, Inside PSTricks, TUGboat, Volume 15, Number 3, September 1994, pages 239–246, available on <http://www.tug.org/TUGboat/Articles/tb15-3/tb44tvz.ps>

☞ As usual, don't forget to think to the **paper** version. As it will be only the result of all the overlays superimposed, it could be just what we want, if the final graphic is only the sum of all the previous states. But in some other cases, we must keep only one state (so one overlay) for the paper version, introducing a simple test. Look at the various examples demonstrated here.

☞ To stop the animation mode inside a document, just force a *long* time as duration of each page (it seem that we cannot put a too huge value, but 500 seconds seems accepted):

```
1 \hypersetup{pdfpageduration=500}
```

☞ With Acroread, it require first a **configuration change of the reader** to view such animations:

- ⇒ in the **Preferences** option of the **File** menu, first choose the **Full Screen** panel,
- ⇒ in it, active the first entry **Advance every N seconds** (which is inactivated by default). Put a high value (in the Linux version, this is convenient to put **1000** seconds, but on the Windows version we can't put more than **59** seconds).
- ⇒ then validate this change with the **OK** button.

☞ To simulate the inclusion of files of the animated GIF format, we can include external files (nevertheless, this will not offer any control on these animations, as in the previous examples). And we must be really careful here, because this is very easy to generate huge files:

⇒ with the same basic technique, we can include external files, as the ones resulting of the disassembling of animated GIF<sup>a</sup> ones, or probably MNG<sup>b</sup> ones

```
1 \begin{slide}
2   \begin{figure}[htbp]
3     \centering
4     \multido{\iImage=1+1}{20}{%
5       \overlay{\iImage}%
6       \ifnum\iImage<10
7         \makebox[0mm]{\includegraphics[width=15truecm]
8                               {Images/wcome0\iImage}}
9       \else
10        \makebox[0mm]{\includegraphics[width=15truecm]
11                          {Images/wcome\iImage}}
12      \fi}
13     \caption{External files inclusion}
14   \end{figure}
15 \end{slide}
```

<sup>a</sup>In my example, I use the `gifsicle` tool (see <http://www.lcdf.org/~eddi/two/gifsicle>) with the `--explode` option, convert each resulting GIF file to a JPEG one, then to a compressed encapsulated PostScript one.

<sup>b</sup>See <http://www.libpng.org/pub/png/png-sitemap.html#animation>

- ⇒ nevertheless, this way would provide a non acceptable huge overhead in the size of the output file if the converter or compiler used is not able to load only one time each file, but load all of them for each overlay (which is to say in my example  $20 \times 20 \times 8 \text{ KB} = 3.2 \text{ MB}$  rather than  $20 \times 8 \text{ KB} = 160 \text{ KB}$ !)
- ⇒ if the compiler or converter used can include only one copy of each file, the CPU time could nevertheless be significant (for instance, the following example alone require 45 sec. with the  $\text{V}\text{T}_{\text{E}}\text{X}$  compiler and a recent processor –but it will produce a file of only 400 KB, including the backgrounds, etc.)
- ⇒ so, if the compiler or converter used does not allow to manage overlays for such tasks, we must use a simple loop on the `slide` environments, putting each image on it own slide. Nevertheless, this cause various annex problems with counters, etc., which must be solved conveniently

```
1 \multido{\iImage=1+1}{20}{%  
2   \begin{slide}  
3     \ifnum\multidocount>1  
4       % Only one time in the list of slides!  
5       \renewcommand{\slideheading}[1]{\makeslideheading{#1}}%  
6     \fi  
7     \slideheading{External files inclusion}%
```

```
8 \vspace{1cm}
9 \begin{figure}[htbp]
10 \centering
11 \ifnum\iImage<10
12 \includegraphics[width=15truecm]{Images/wcome0\iImage}
13 \else
14 \includegraphics[width=15truecm]{Images/wcome\iImage}
15 \fi
16 \caption{External files inclusion}
17 \end{figure}
18 \end{slide}
19 \addtocounter{figure}{-1}%
20 \addtocounter{slide}{-1}}
21
22 % If other slides followed...
23 \addtocounter{figure}{1}
24 \addtocounter{slide}{1}
```

➡ Now, if you switch to **Full Screen** mode now then go to the next page, the visualization of the next slides will be **automatic**...

## 2 – Communication ring

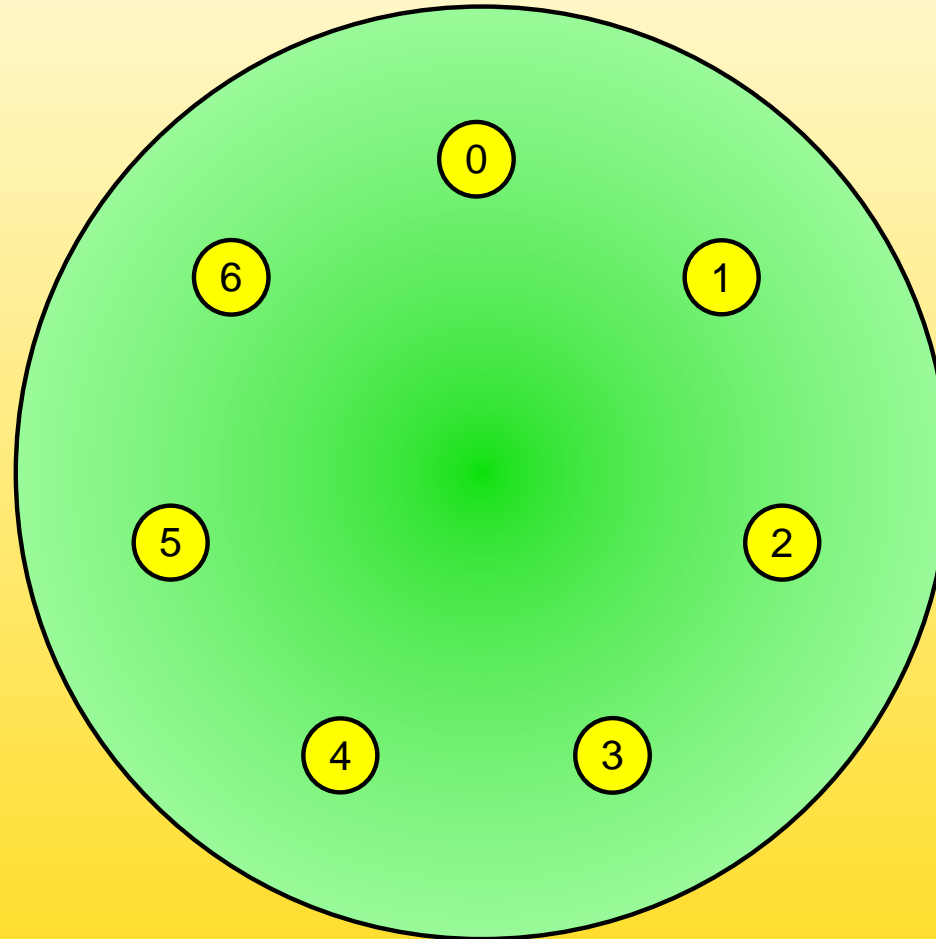


Figure 1: Communication ring

End of animation



## 2 – Communication ring

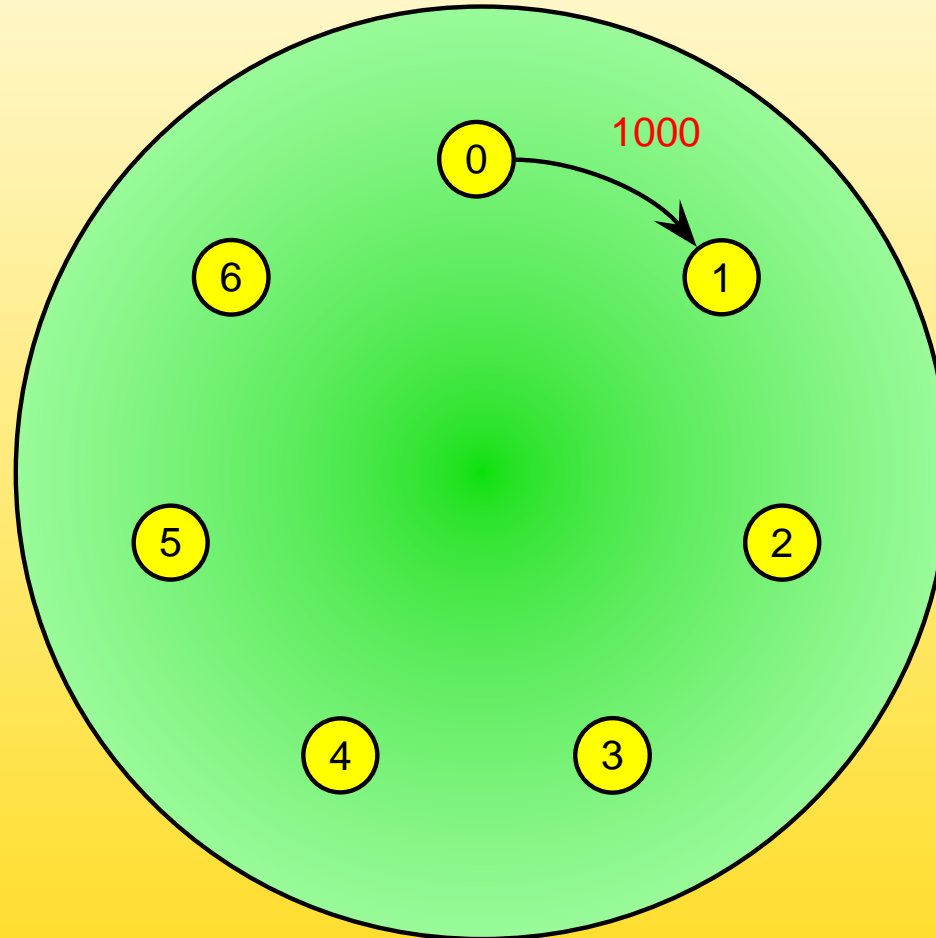


Figure 1: Communication ring

End of animation

## 2 – Communication ring

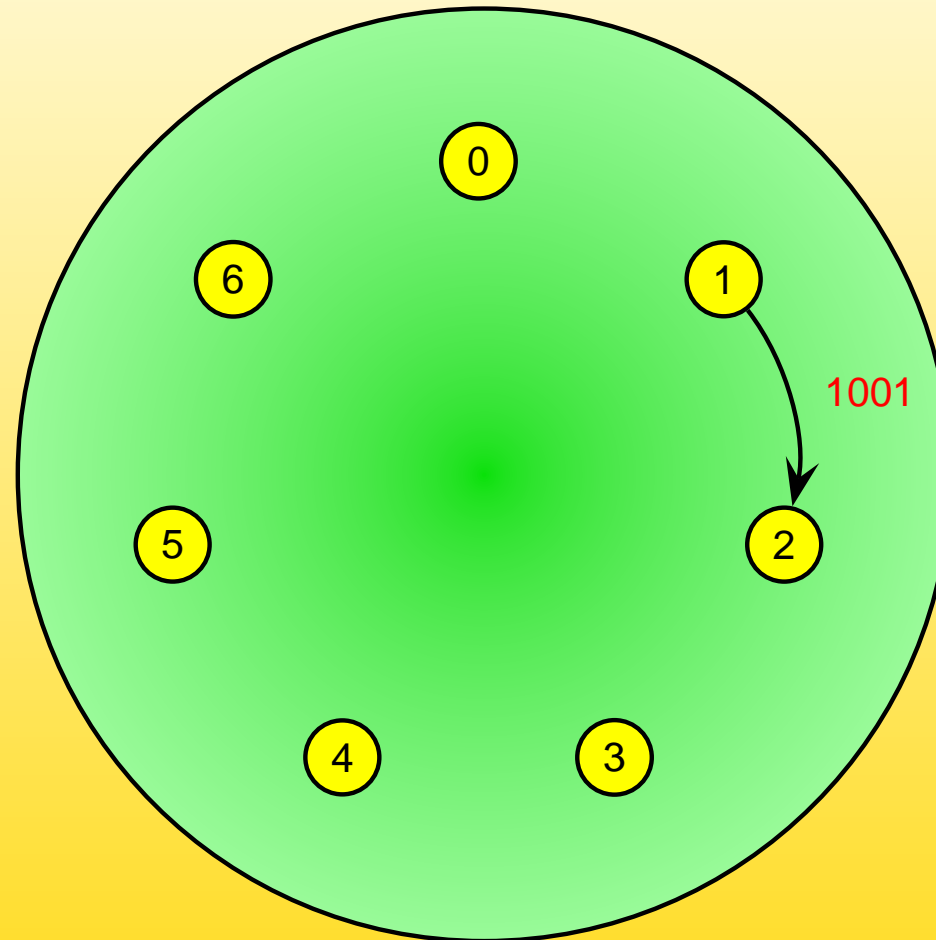


Figure 1: Communication ring

End of animation

## 2 – Communication ring

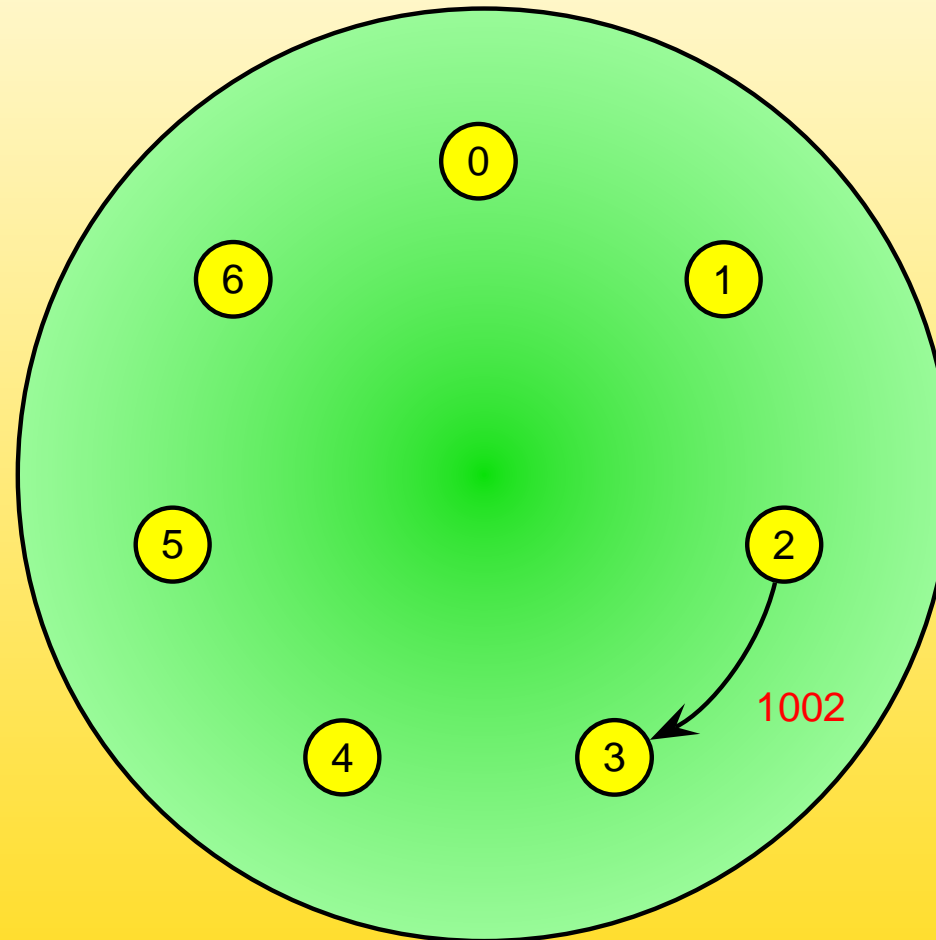


Figure 1: Communication ring

End of animation

## 2 – Communication ring

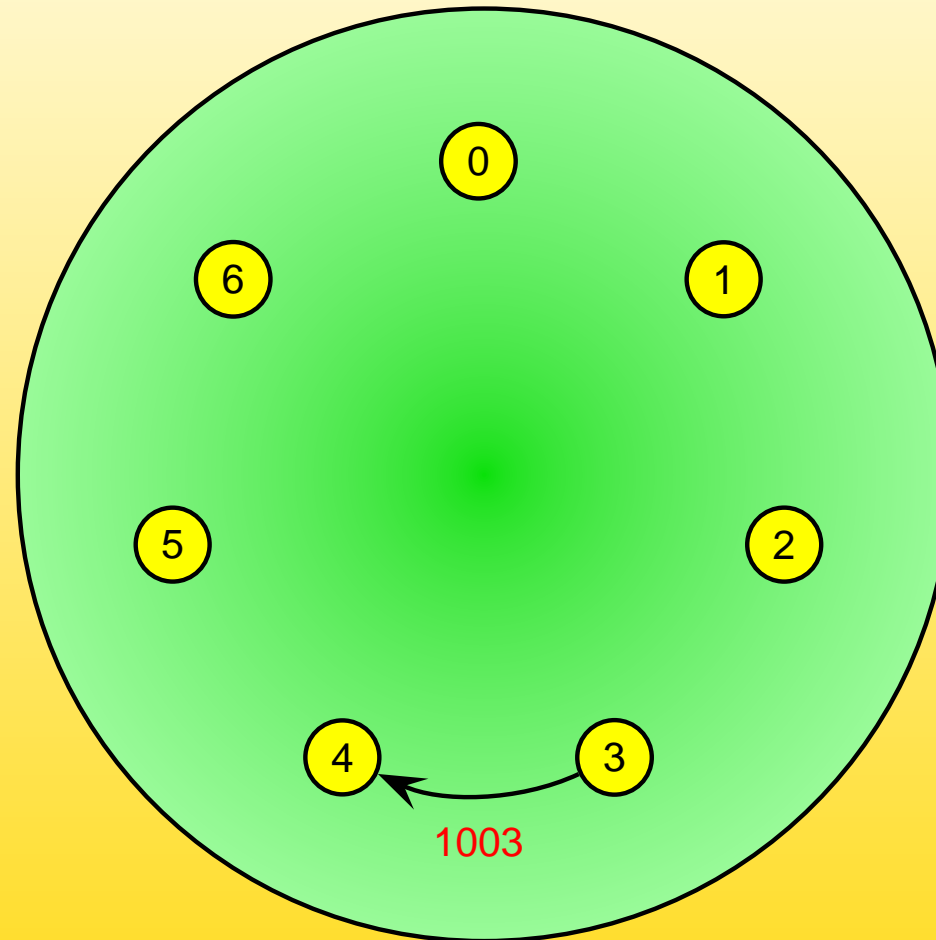


Figure 1: Communication ring

End of animation

## 2 – Communication ring

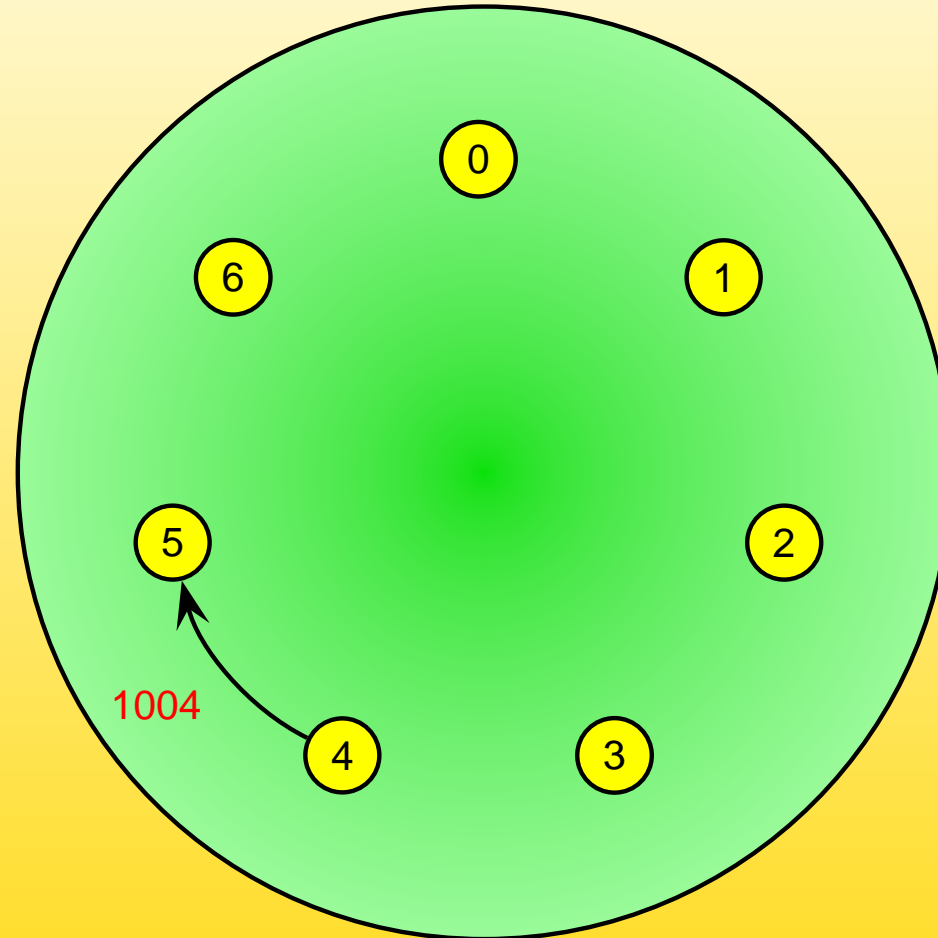


Figure 1: Communication ring

End of animation

## 2 – Communication ring

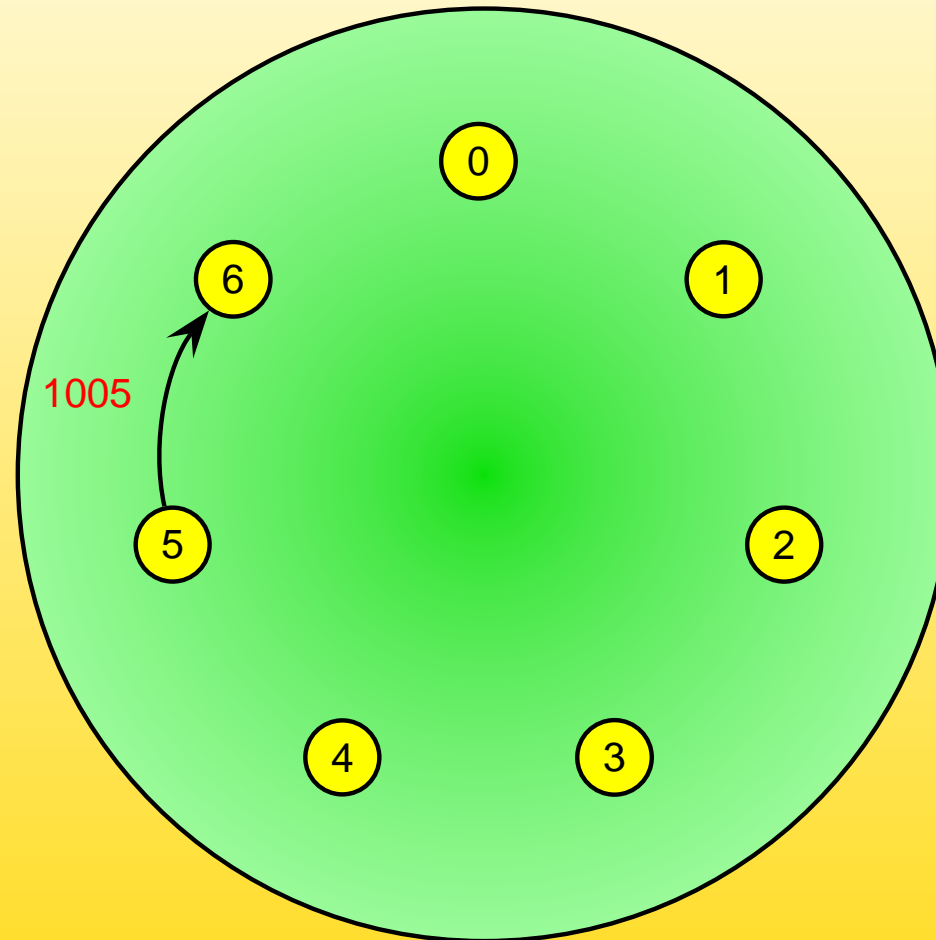


Figure 1: Communication ring

End of animation

## 2 – Communication ring

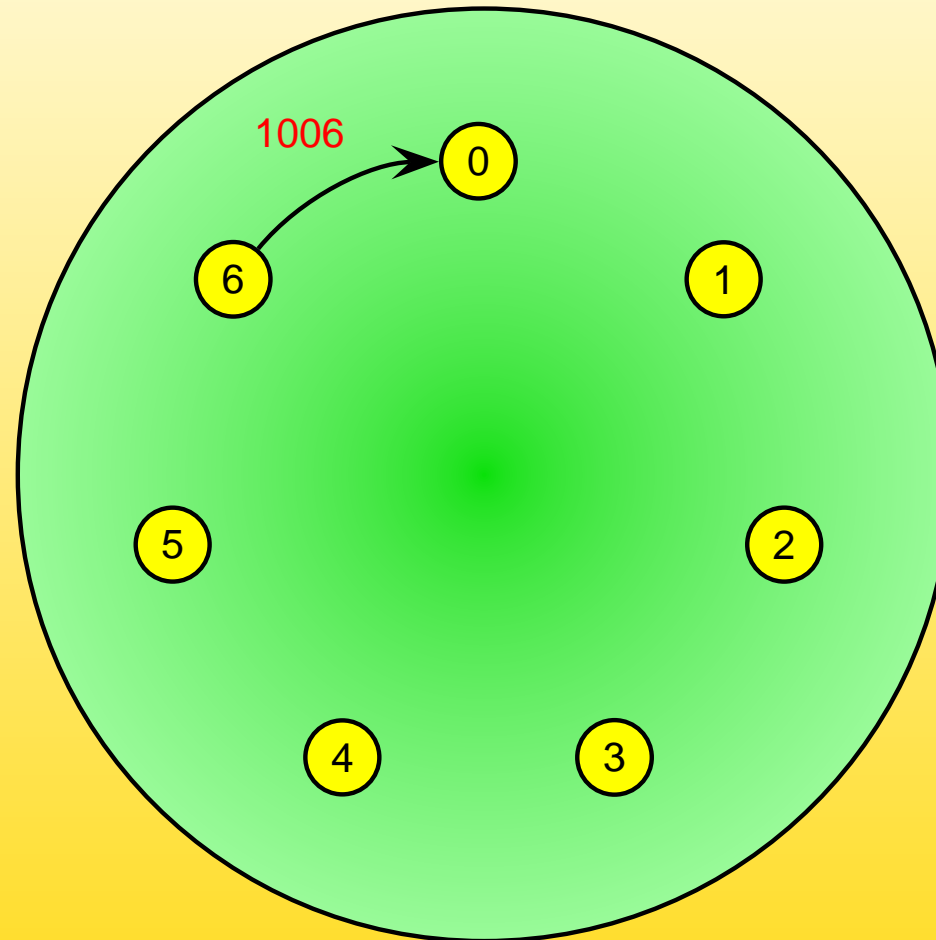


Figure 1: Communication ring

End of animation

## 3 – Commutative diagram

Figure 2: Commutative diagram

End of animation



## 3 – Commutative diagram

$L$

Figure 2: Commutative diagram

End of animation

## 3 – Commutative diagram

$$L \xleftarrow{i_1} L_r$$

Figure 2: Commutative diagram

End of animation

## 3 – Commutative diagram

$$L \xleftarrow{i_1} L_r \xrightarrow{r} R$$

Figure 2: Commutative diagram

End of animation

## 3 – Commutative diagram

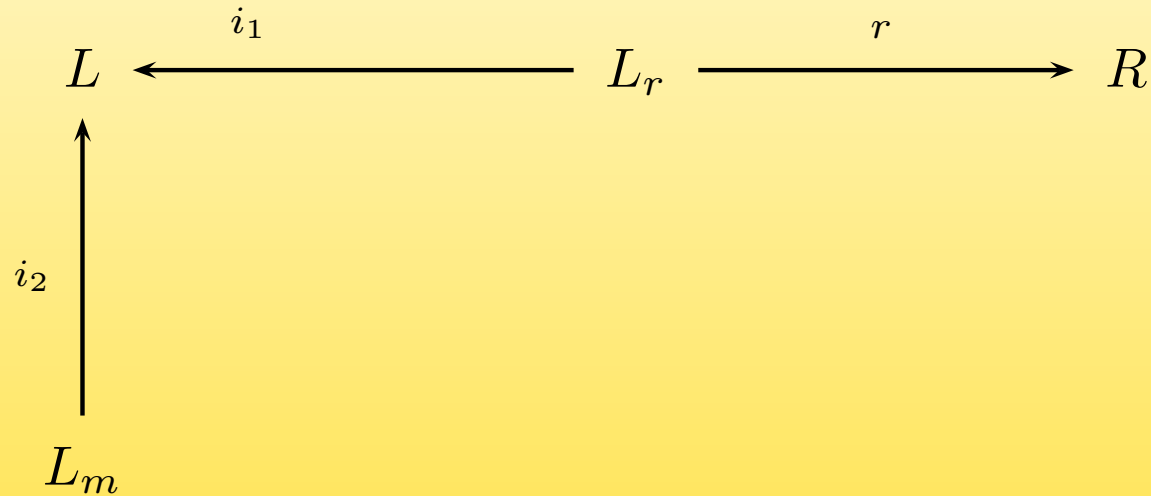


Figure 2: Commutative diagram

End of animation

## 3 – Commutative diagram

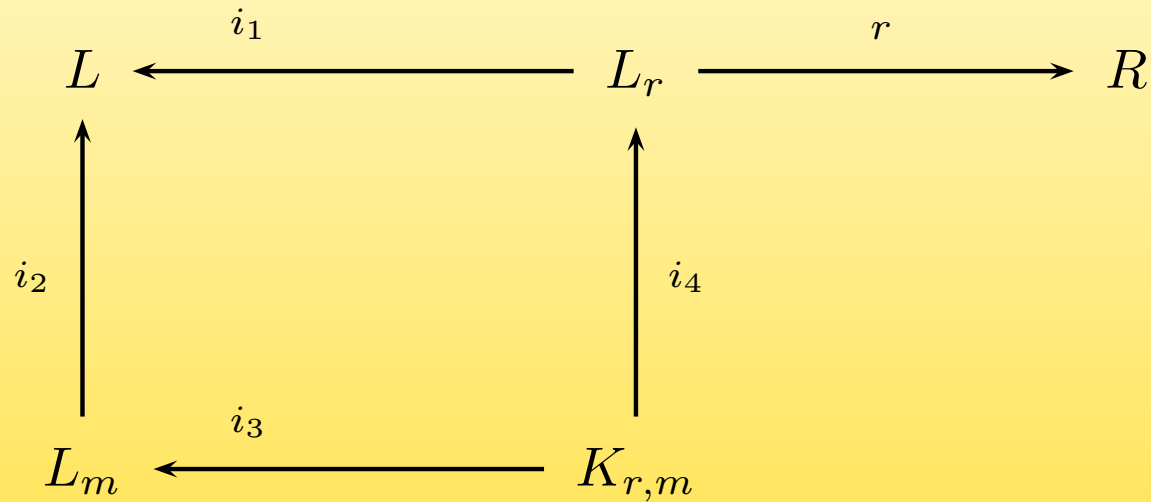


Figure 2: Commutative diagram

End of animation

## 3 – Commutative diagram

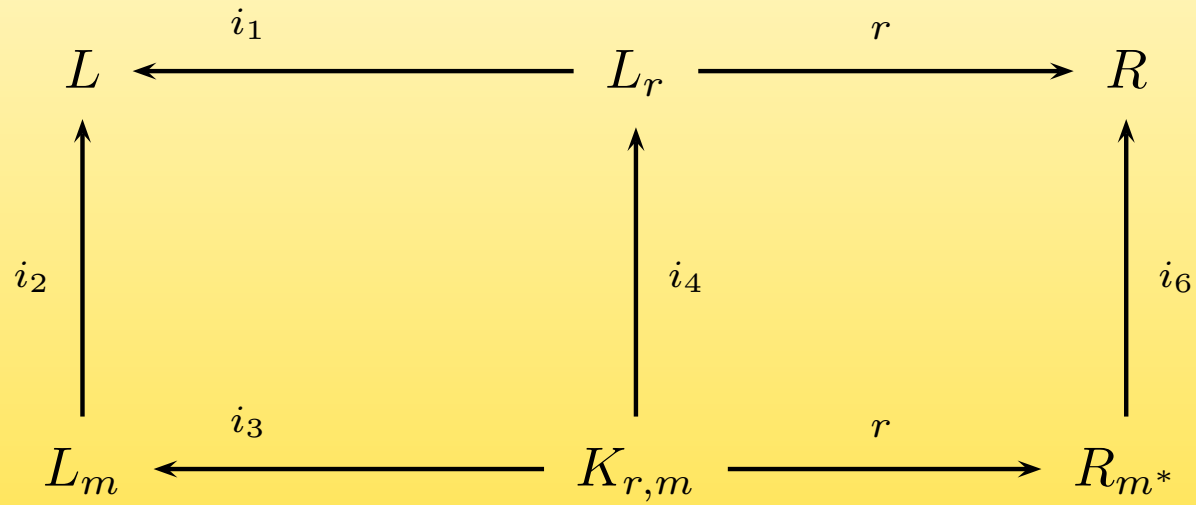


Figure 2: Commutative diagram

End of animation

## 3 – Commutative diagram

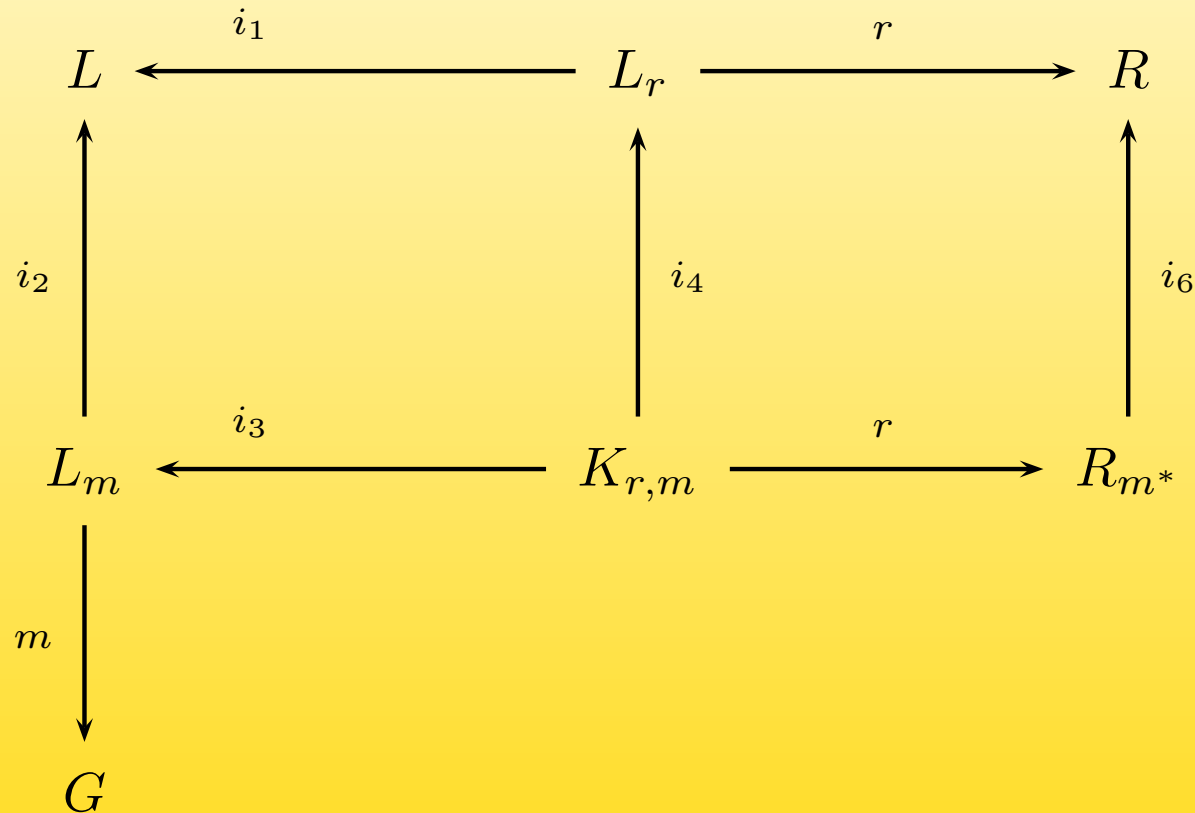


Figure 2: Commutative diagram

End of animation

## 3 – Commutative diagram

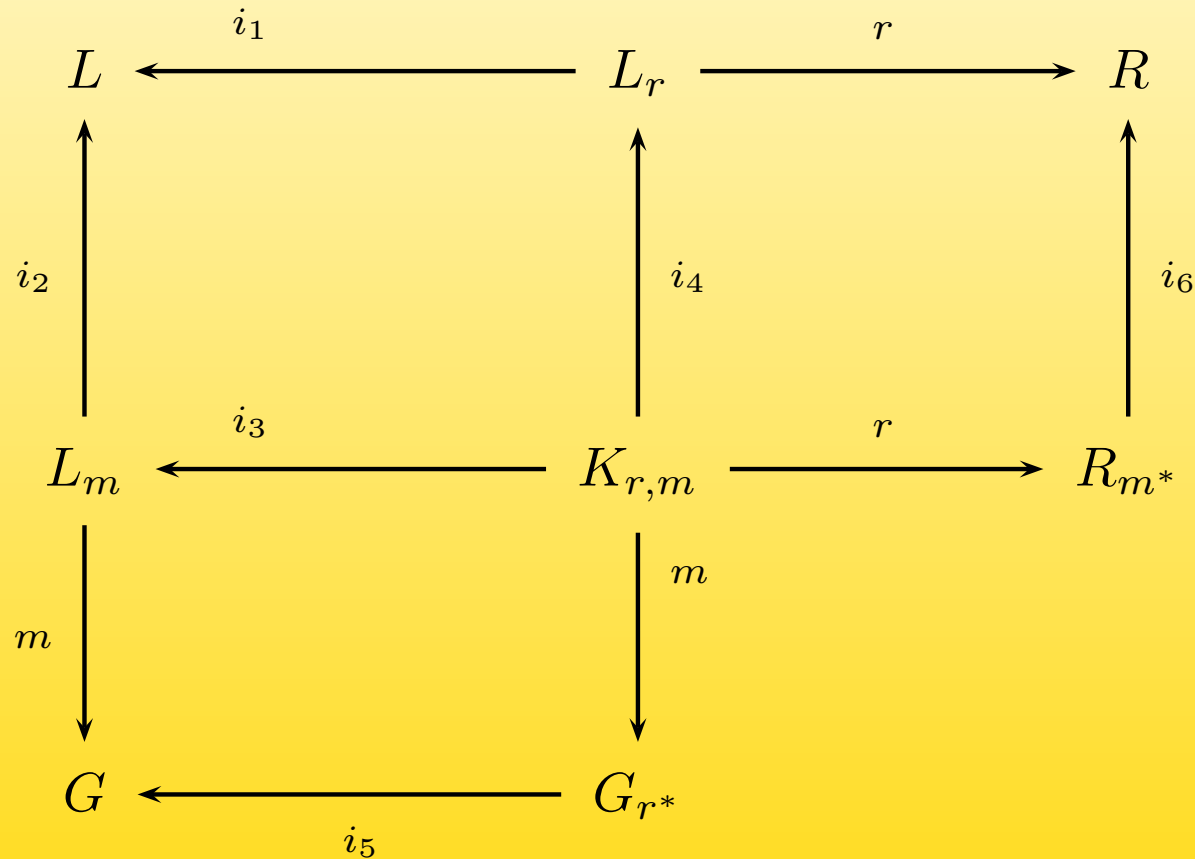


Figure 2: Commutative diagram

End of animation



## 3 – Commutative diagram

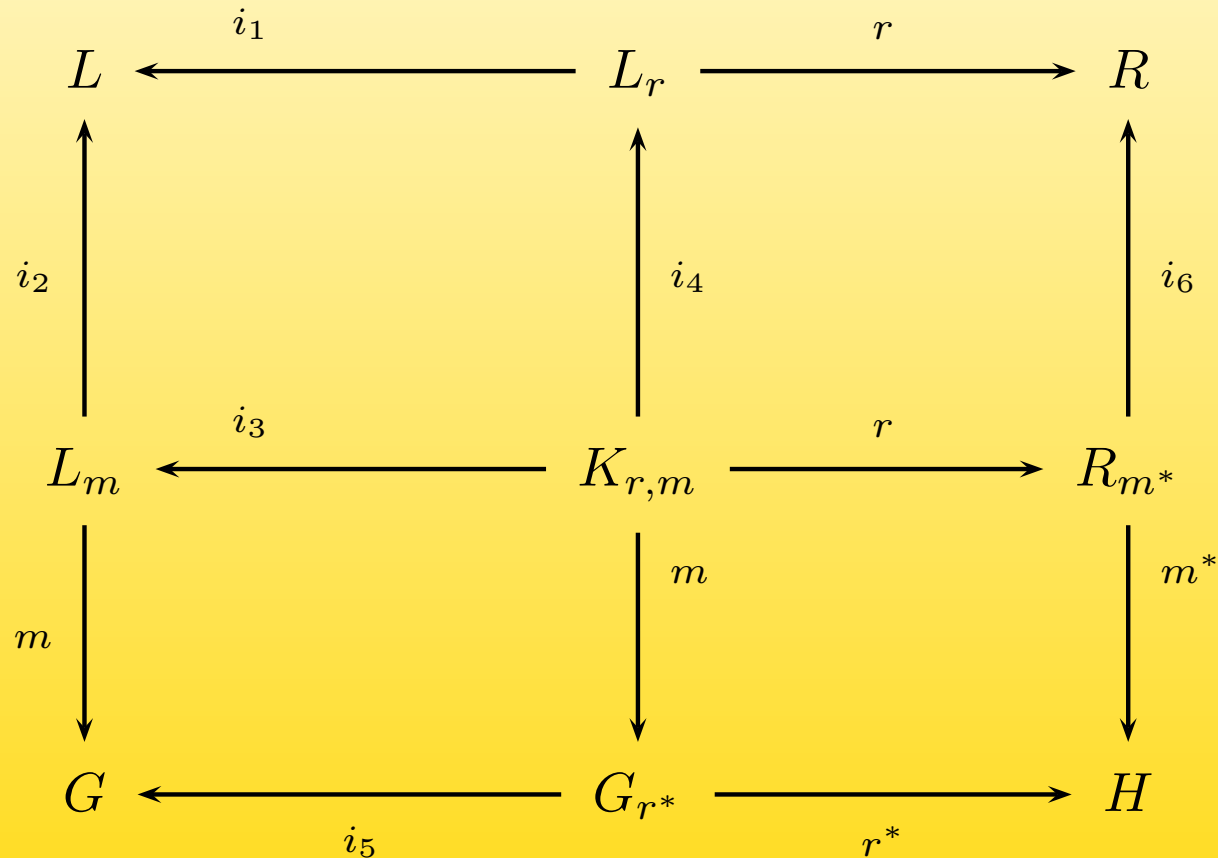


Figure 2: Commutative diagram

End of animation

## 3 – Commutative diagram

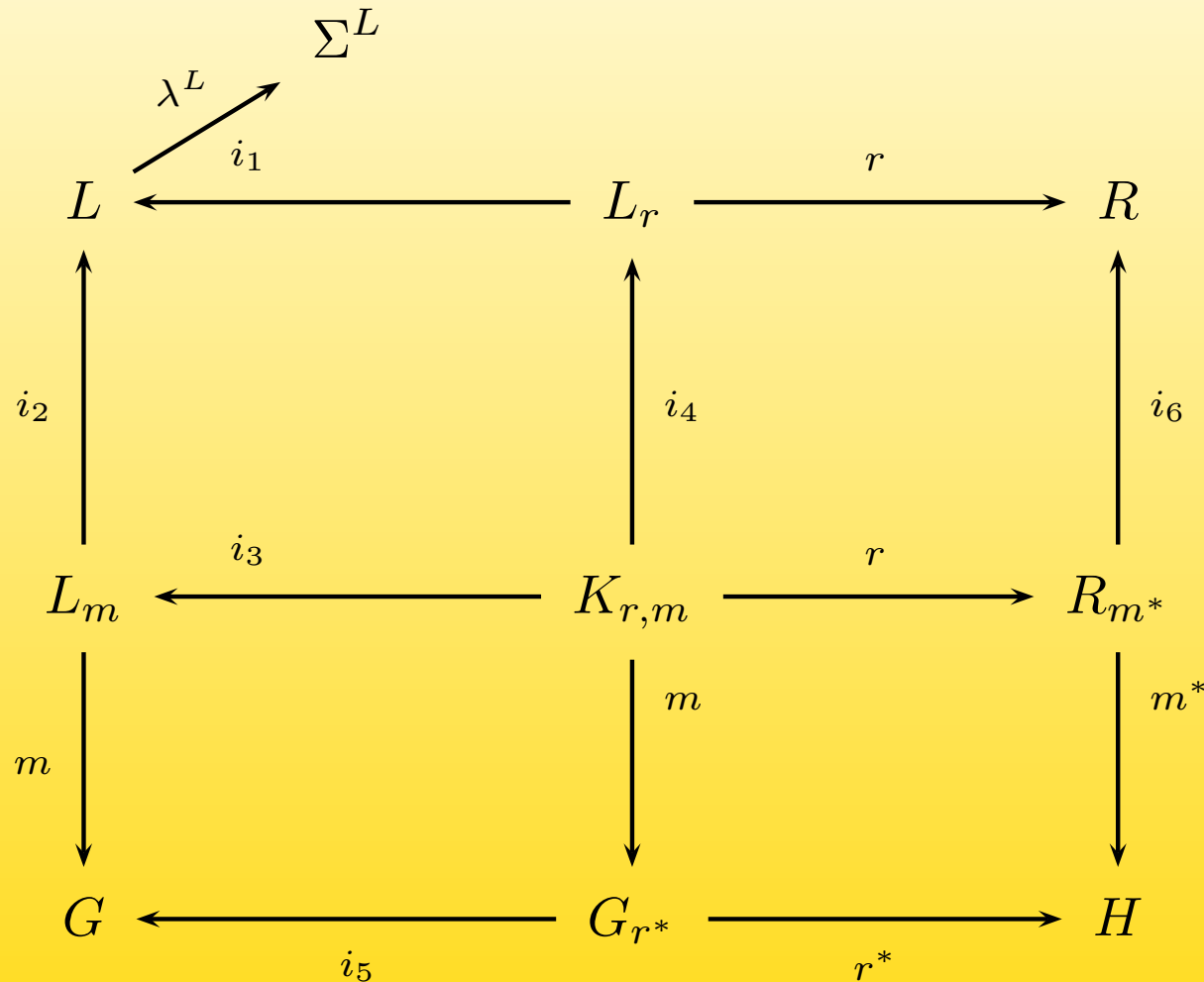


Figure 2: Commutative diagram

End of animation

## 3 – Commutative diagram

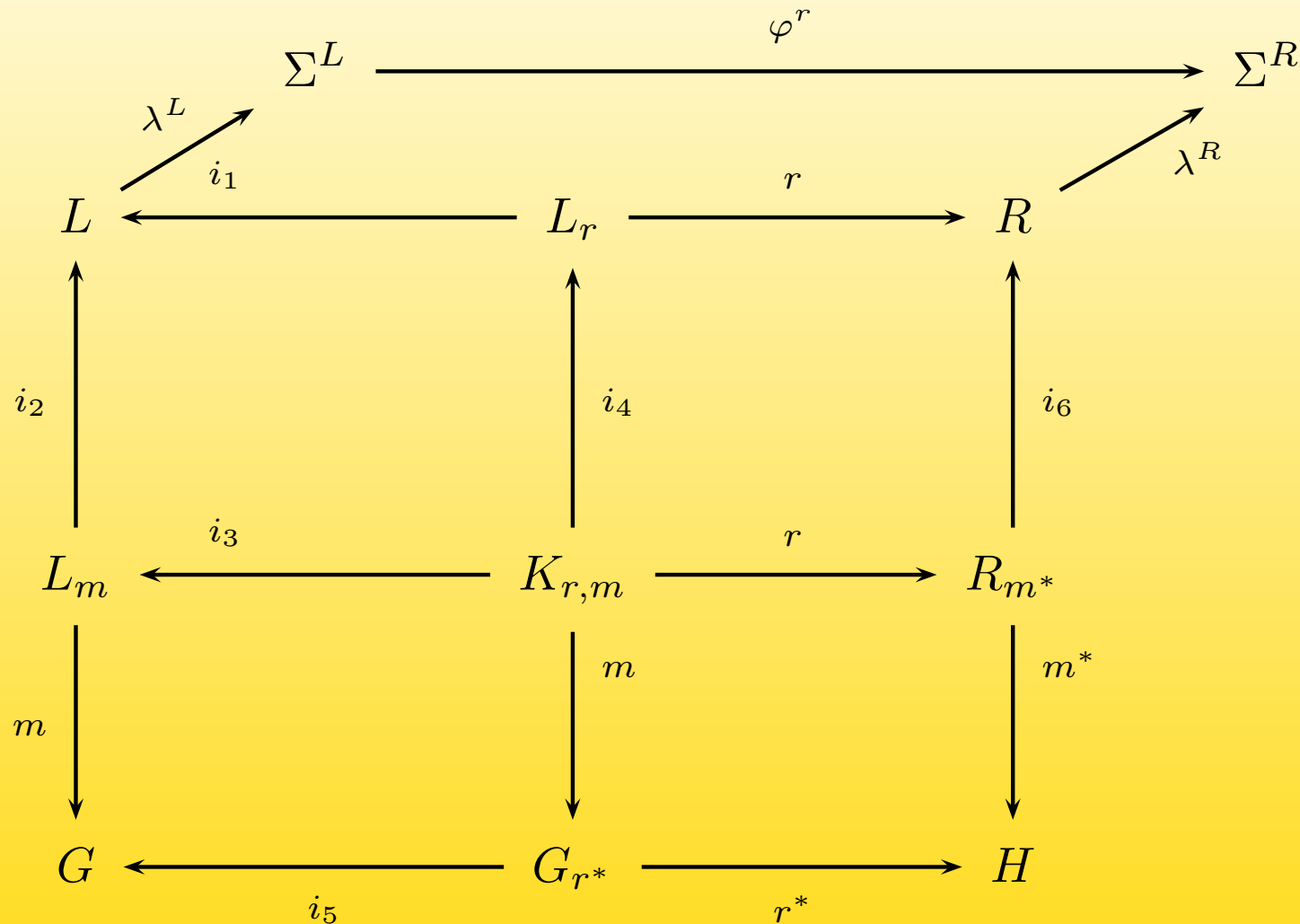


Figure 2: Commutative diagram

End of animation

## 3 – Commutative diagram

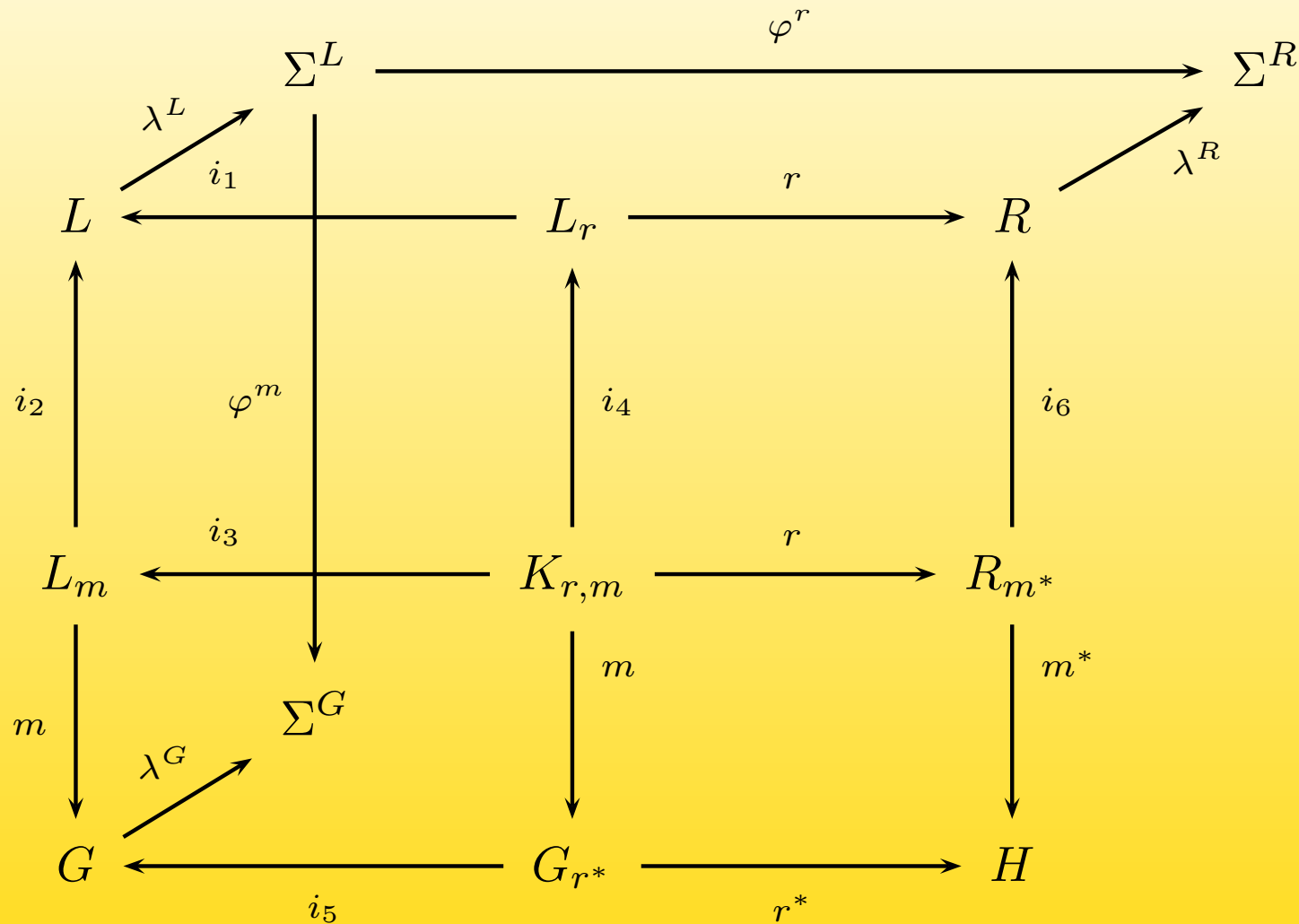


Figure 2: Commutative diagram

End of animation

## 3 – Commutative diagram

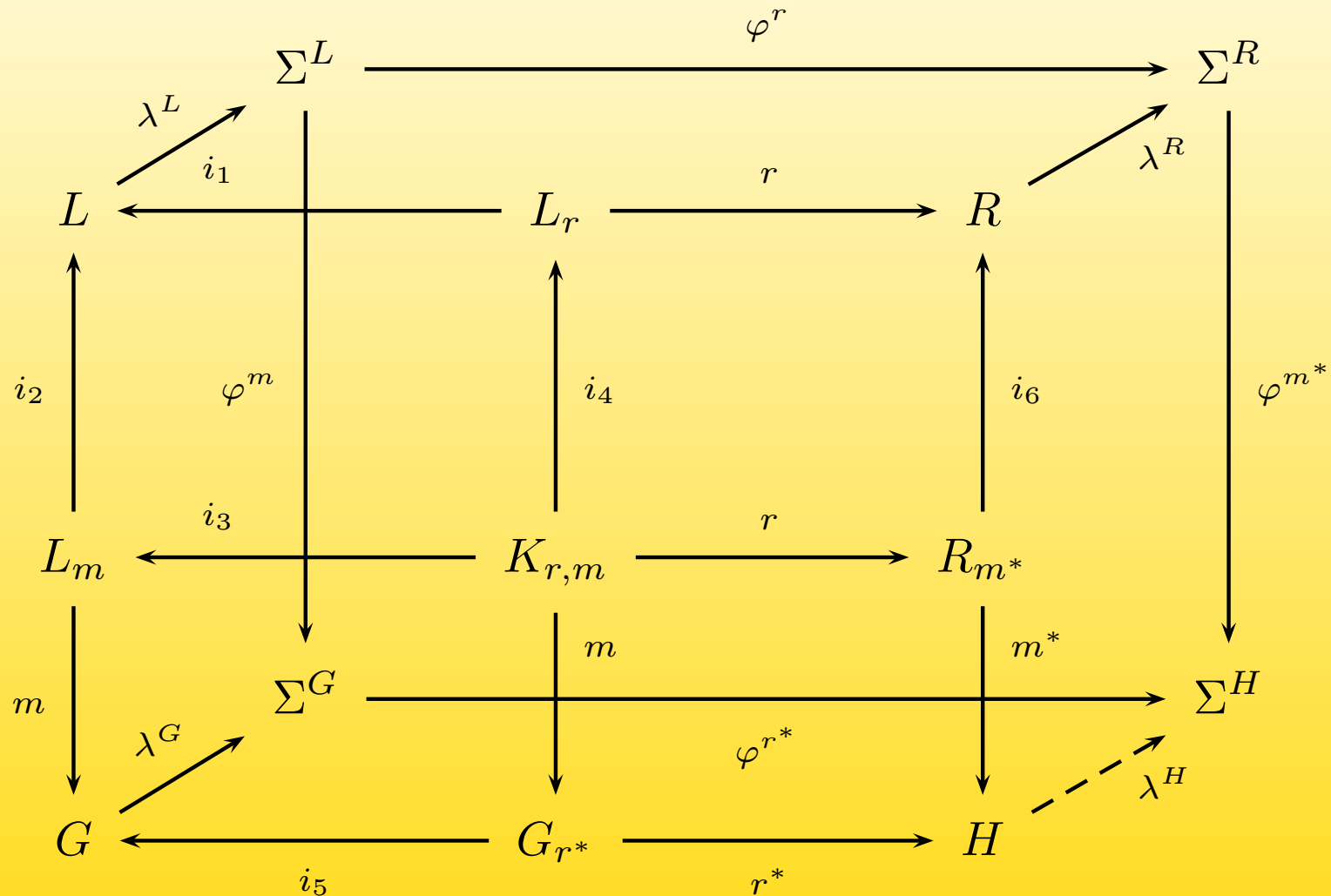
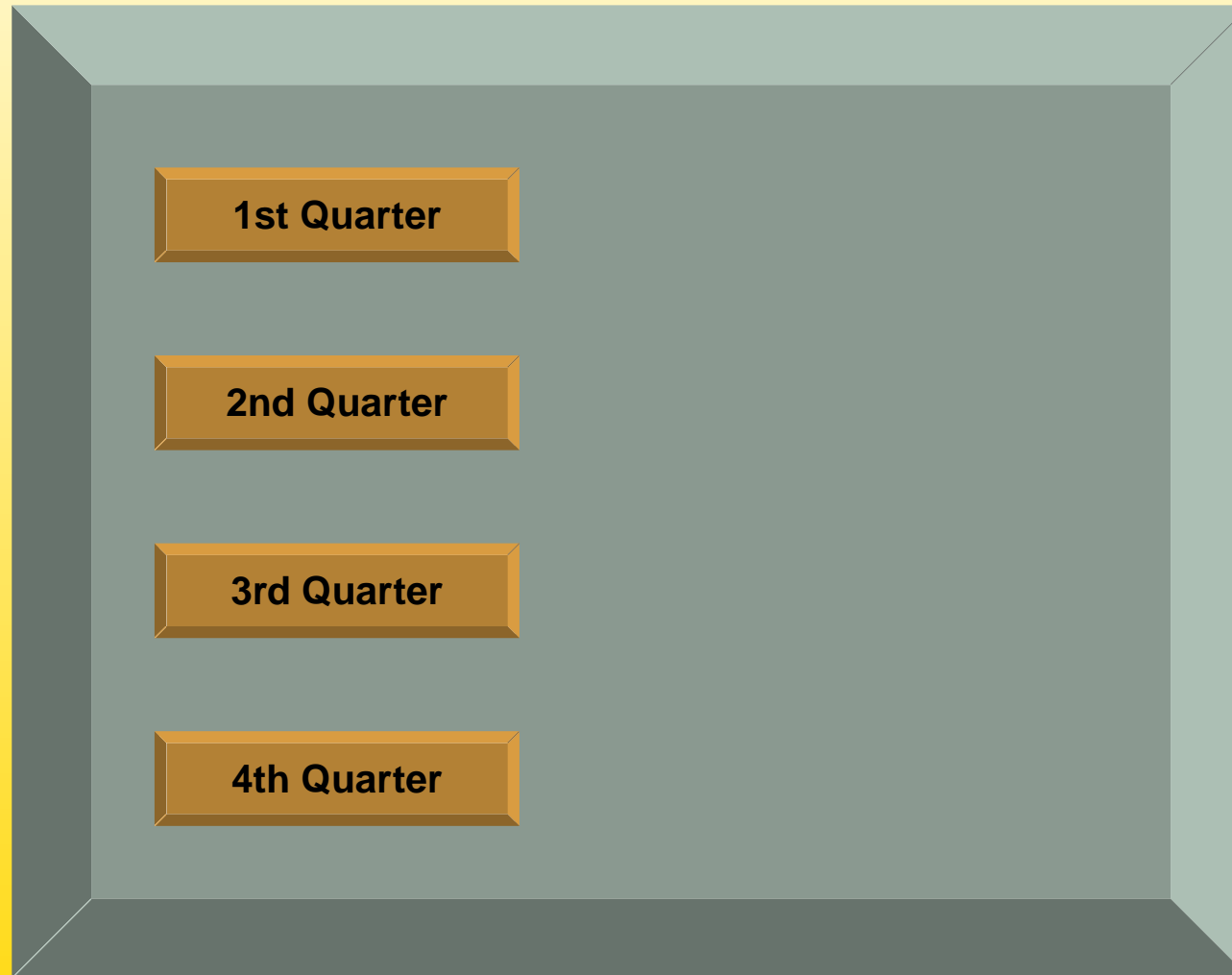


Figure 2: Commutative diagram

End of animation

## 4 – Results of the year

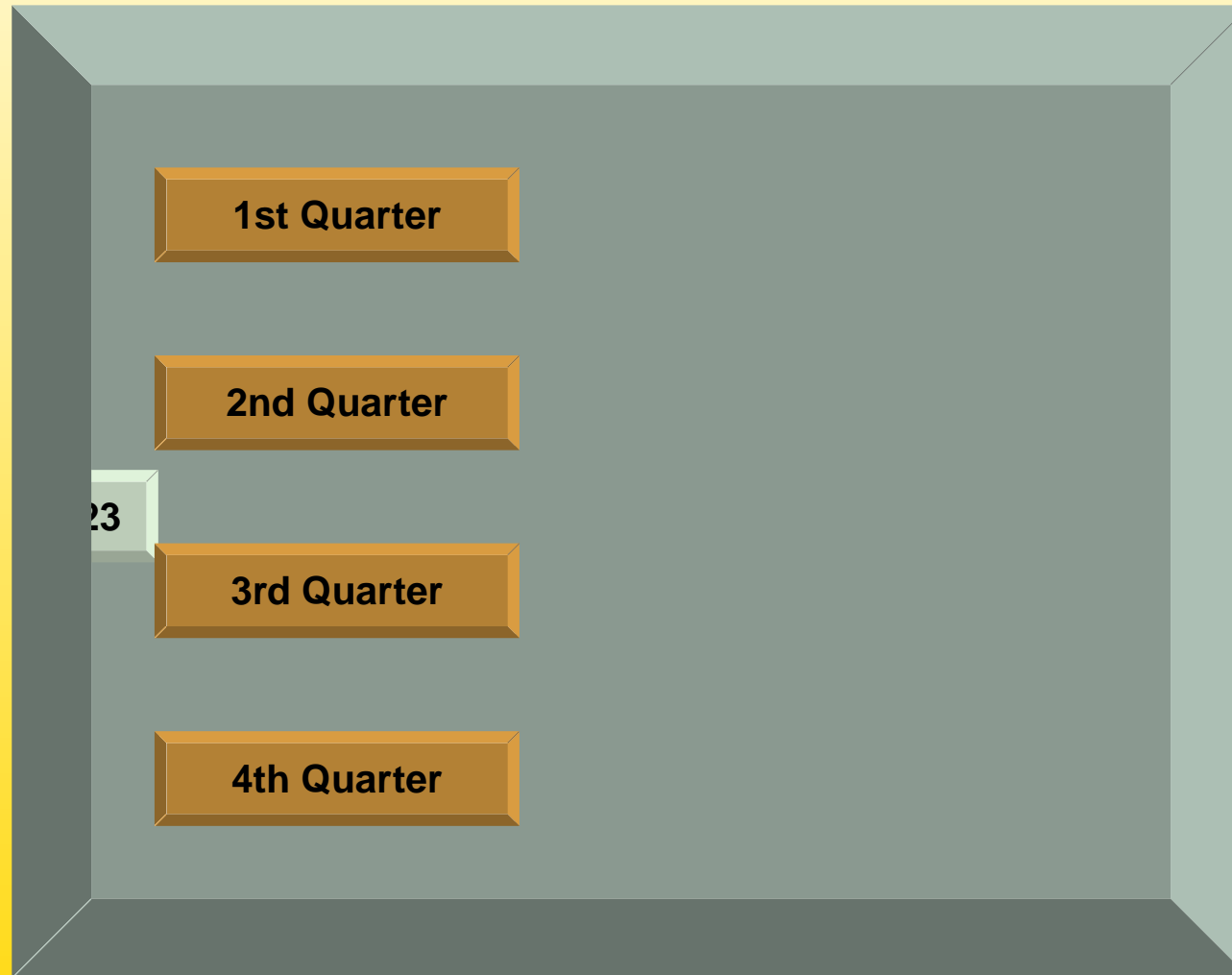
Table 1: Results of the year



End of animation

## 4 – Results of the year

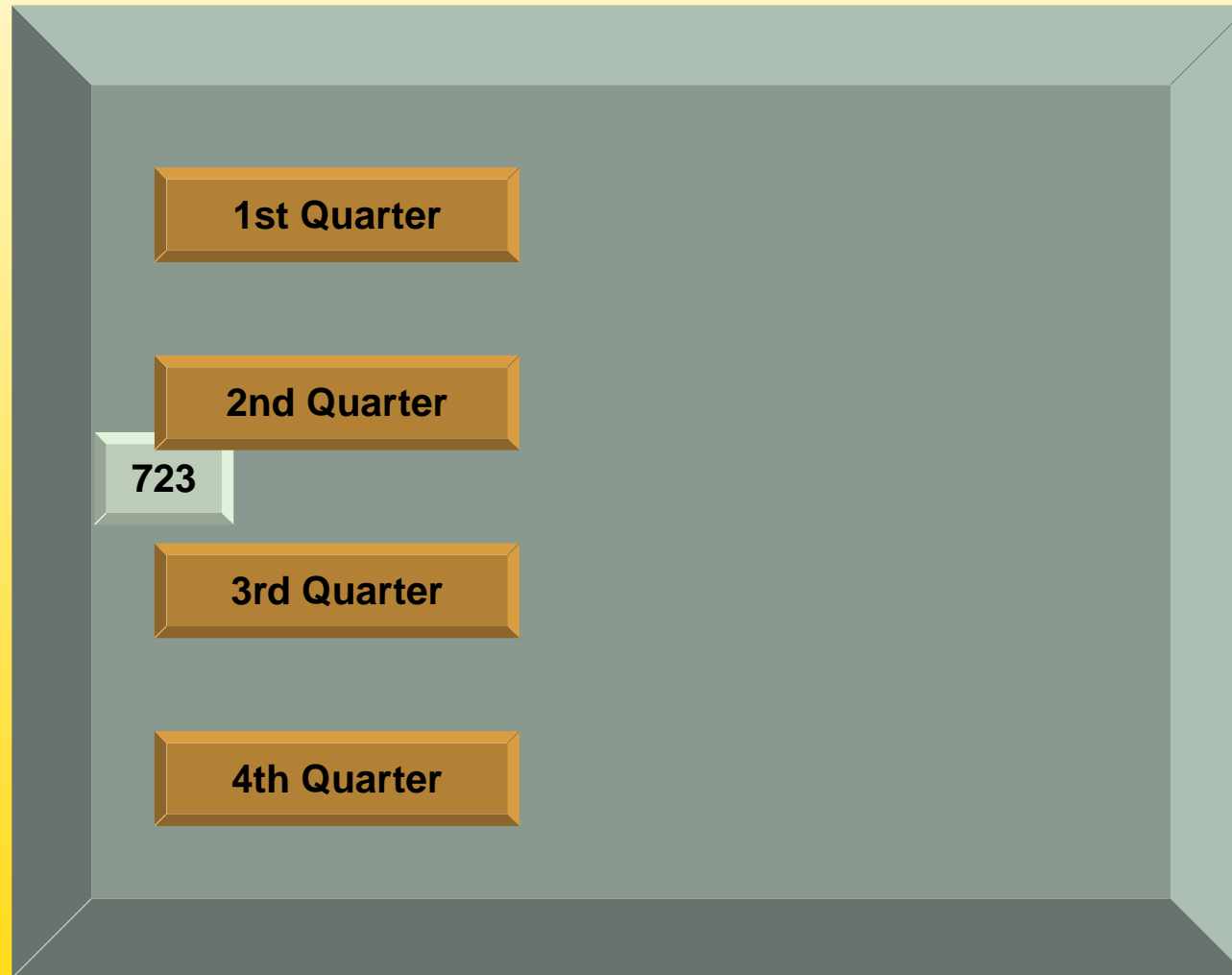
Table 1: Results of the year



End of animation

## 4 – Results of the year

Table 1: Results of the year

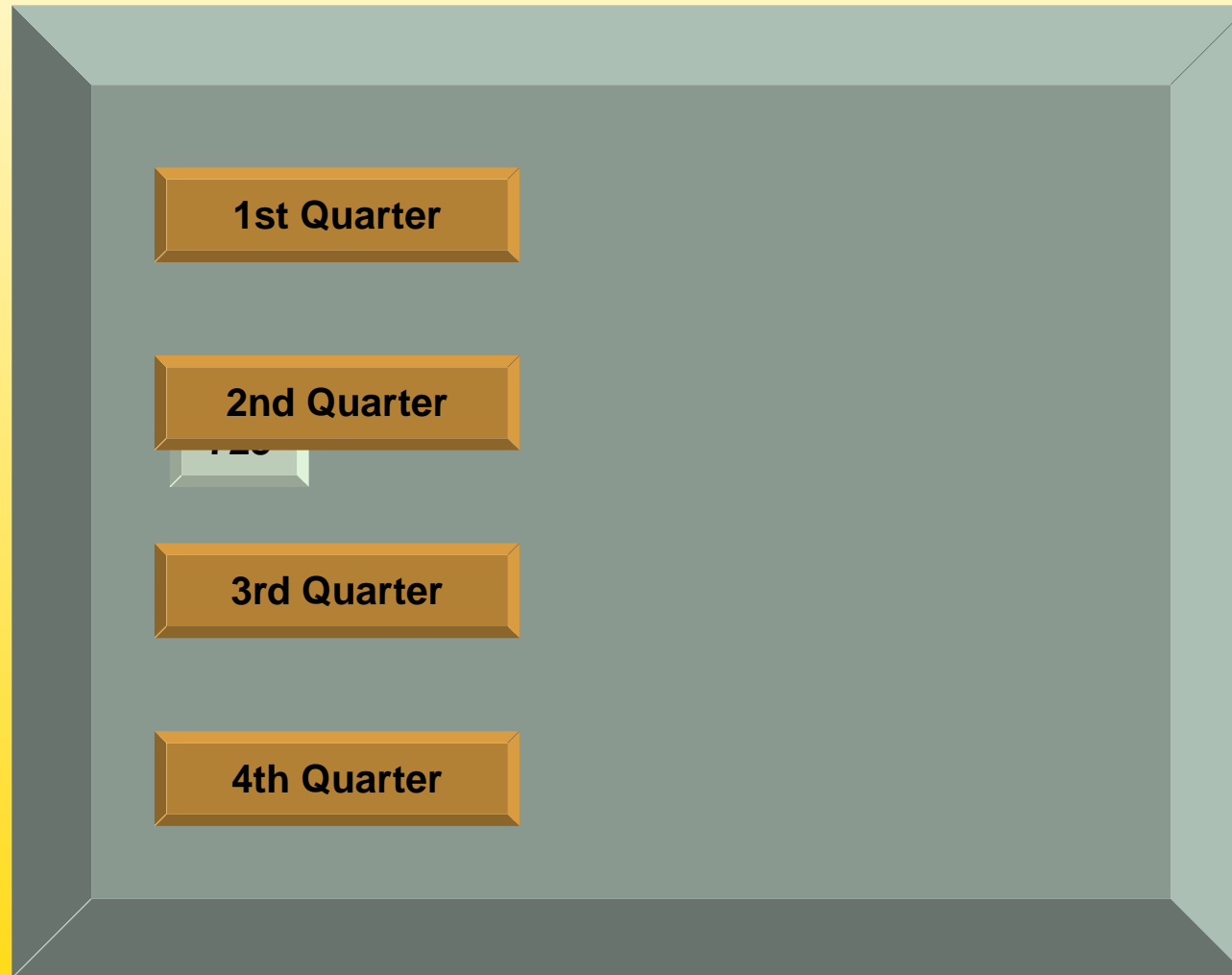


End of animation



## 4 – Results of the year

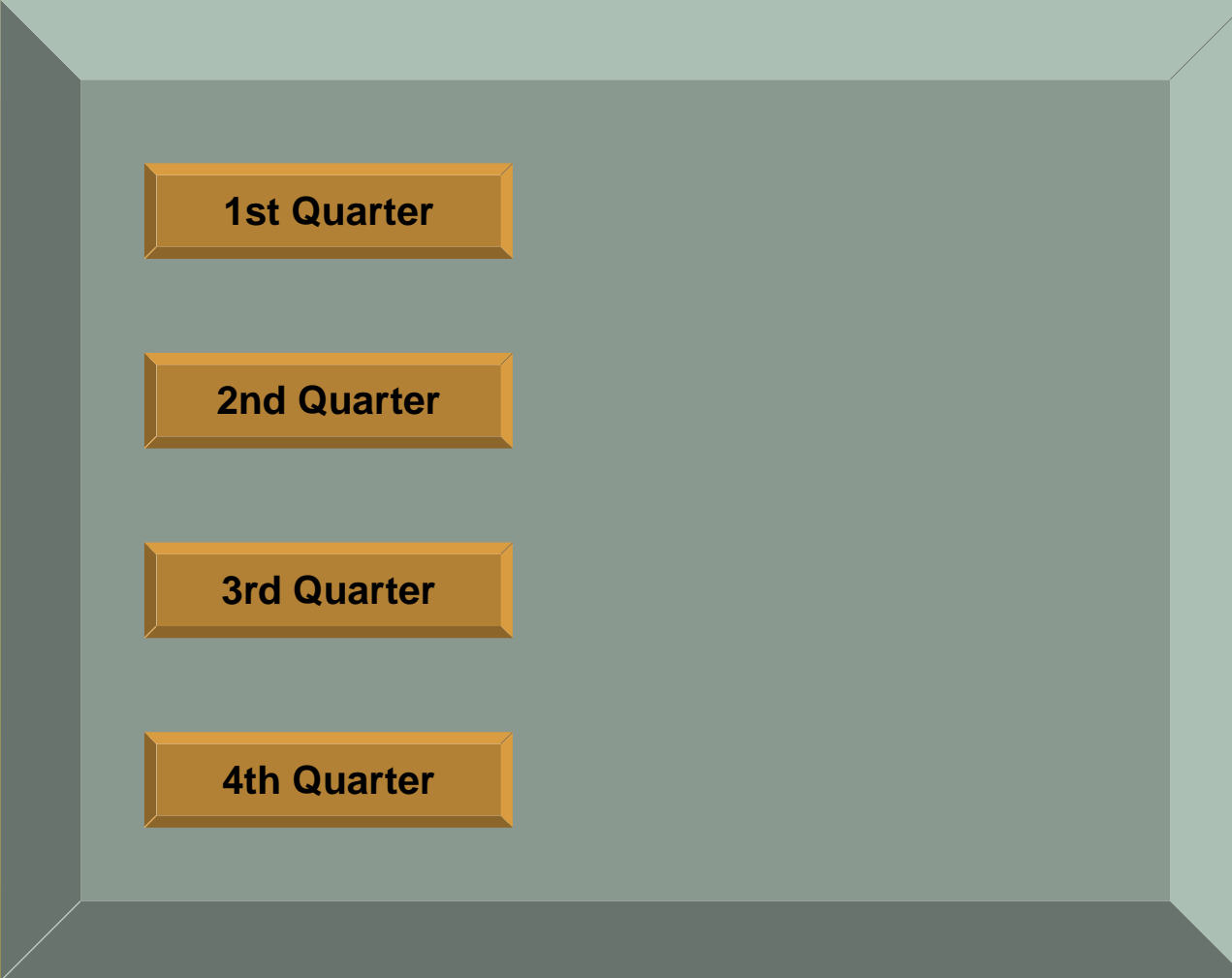
Table 1: Results of the year



End of animation

## 4 – Results of the year

Table 1: Results of the year

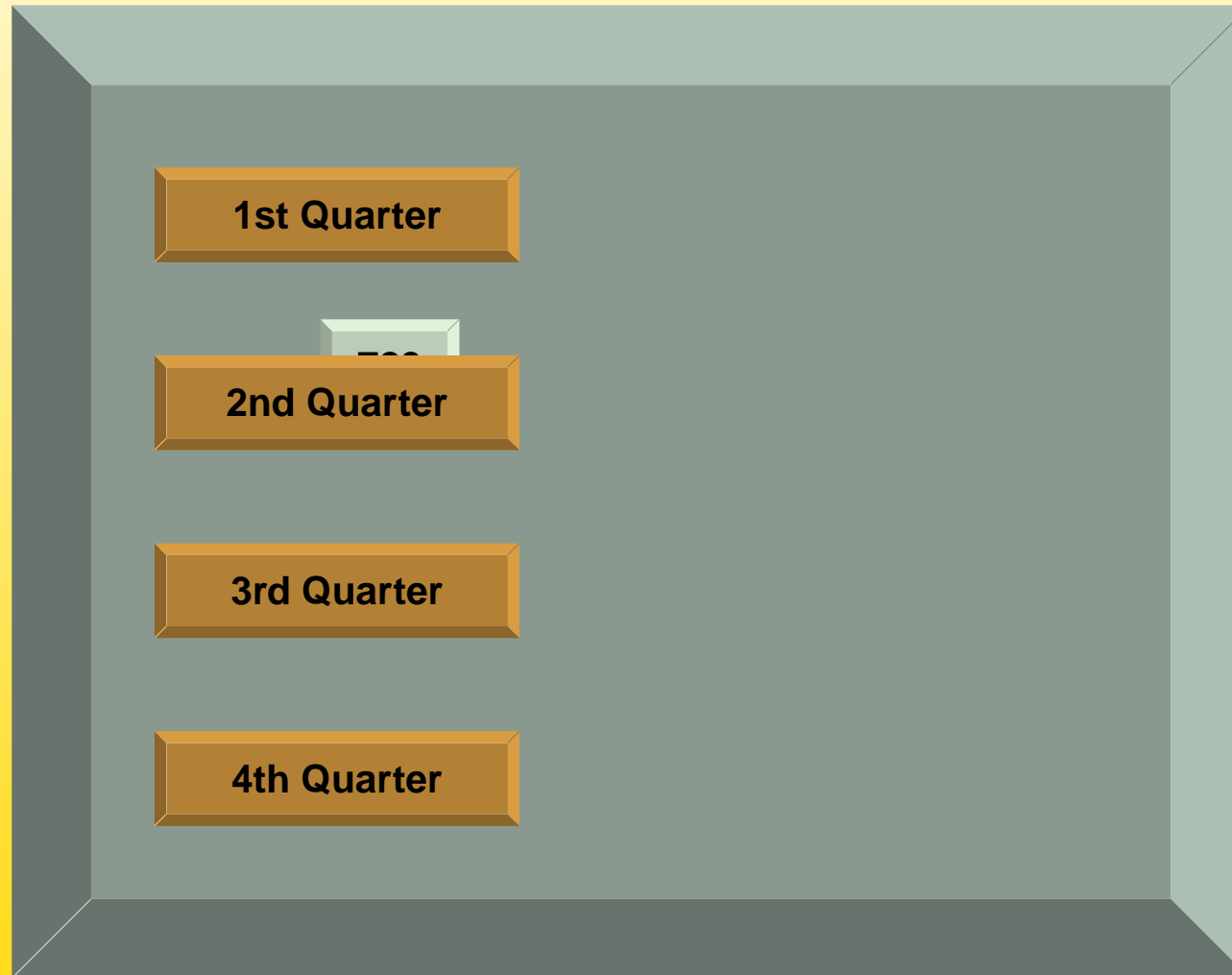


1st Quarter
2nd Quarter
3rd Quarter
4th Quarter

End of animation

## 4 – Results of the year

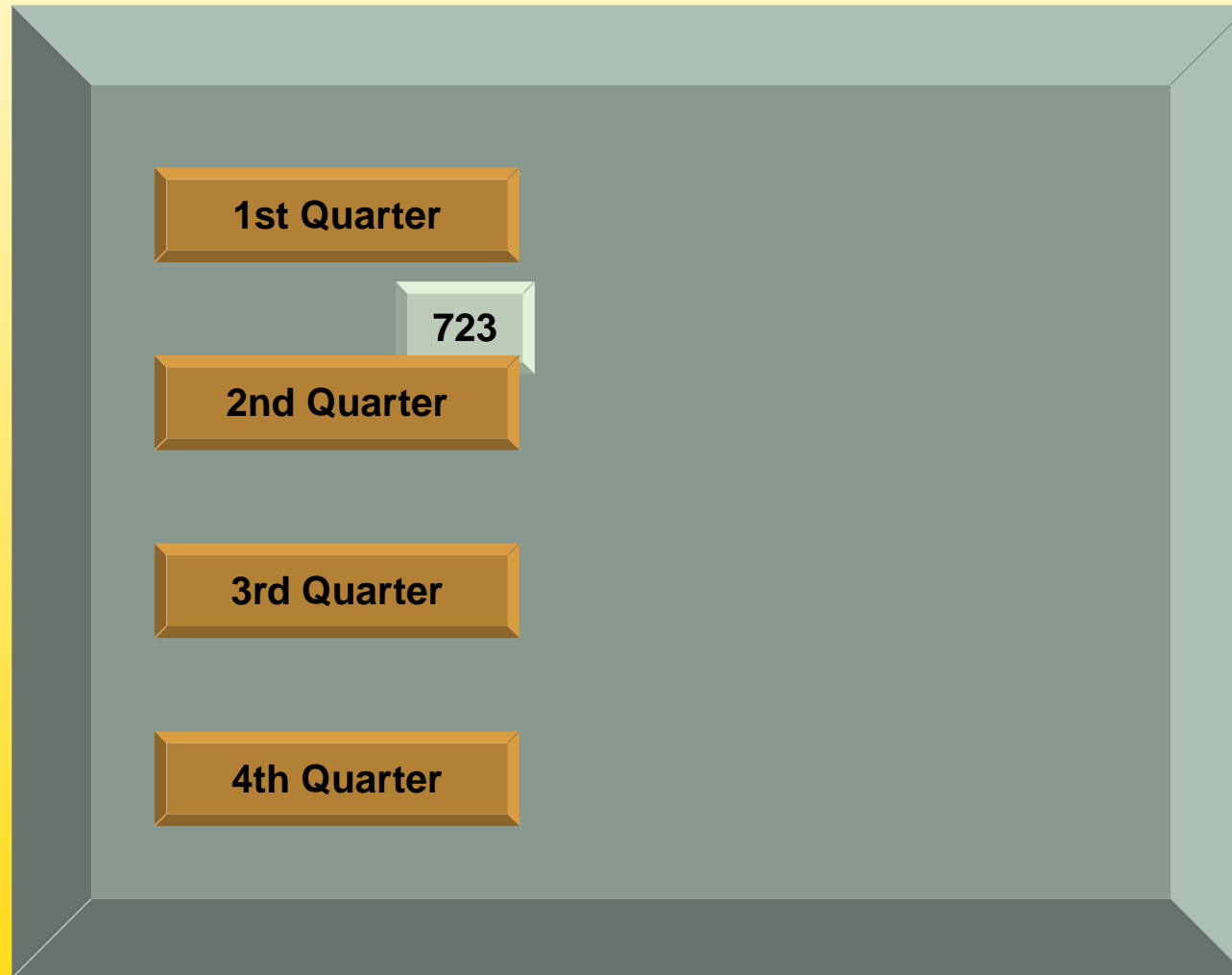
Table 1: Results of the year



End of animation

## 4 – Results of the year

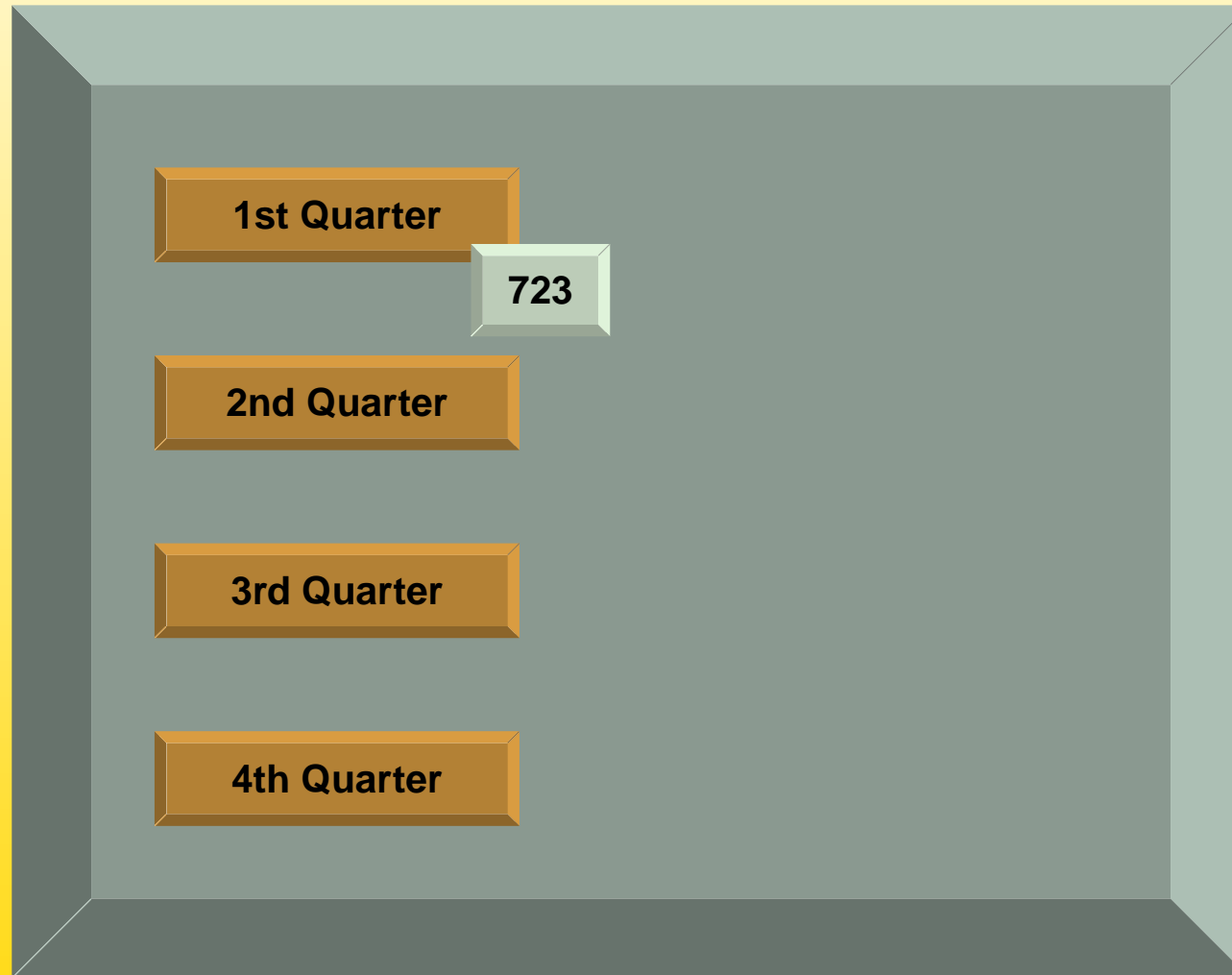
Table 1: Results of the year



End of animation

## 4 – Results of the year

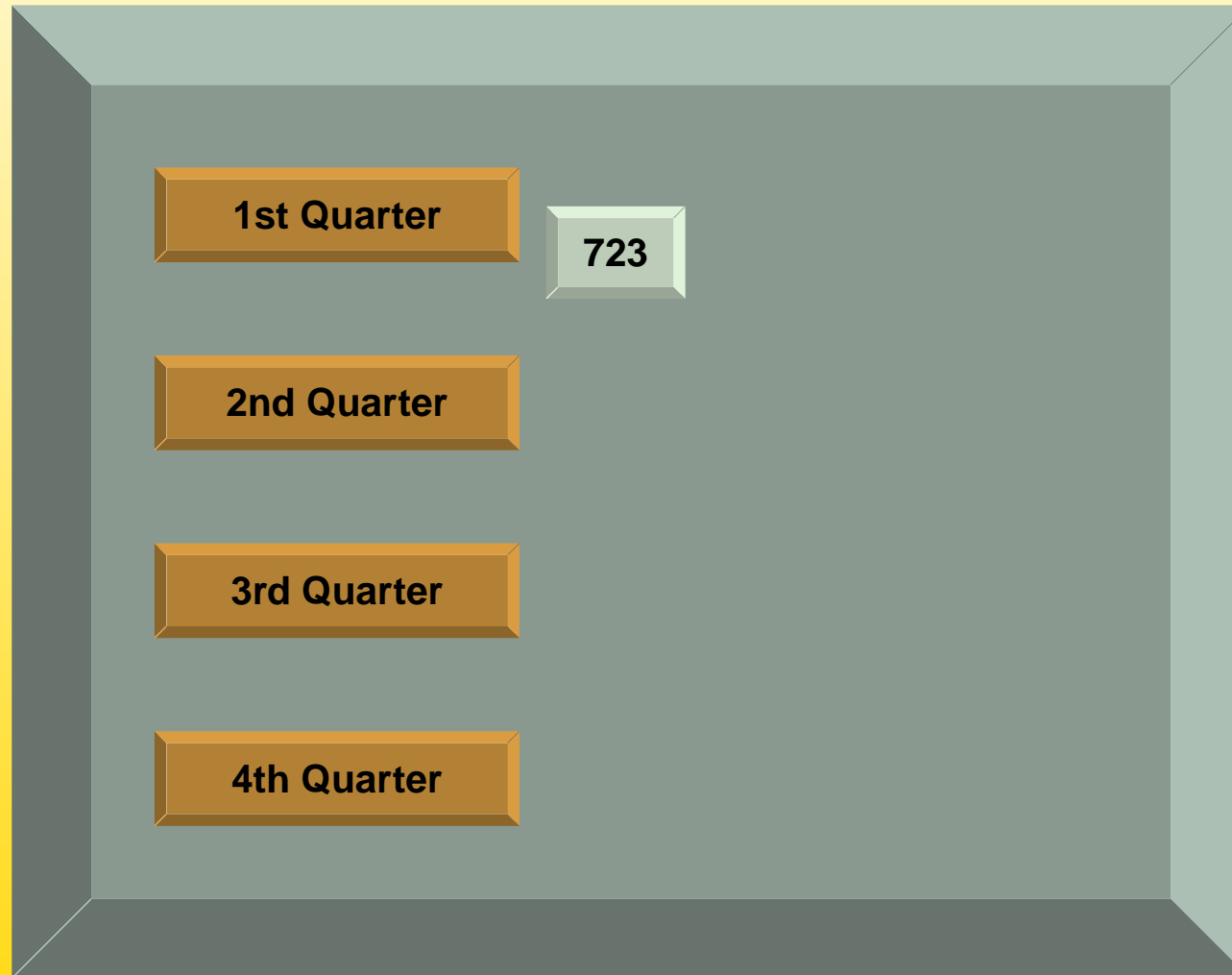
Table 1: Results of the year



End of animation

## 4 – Results of the year

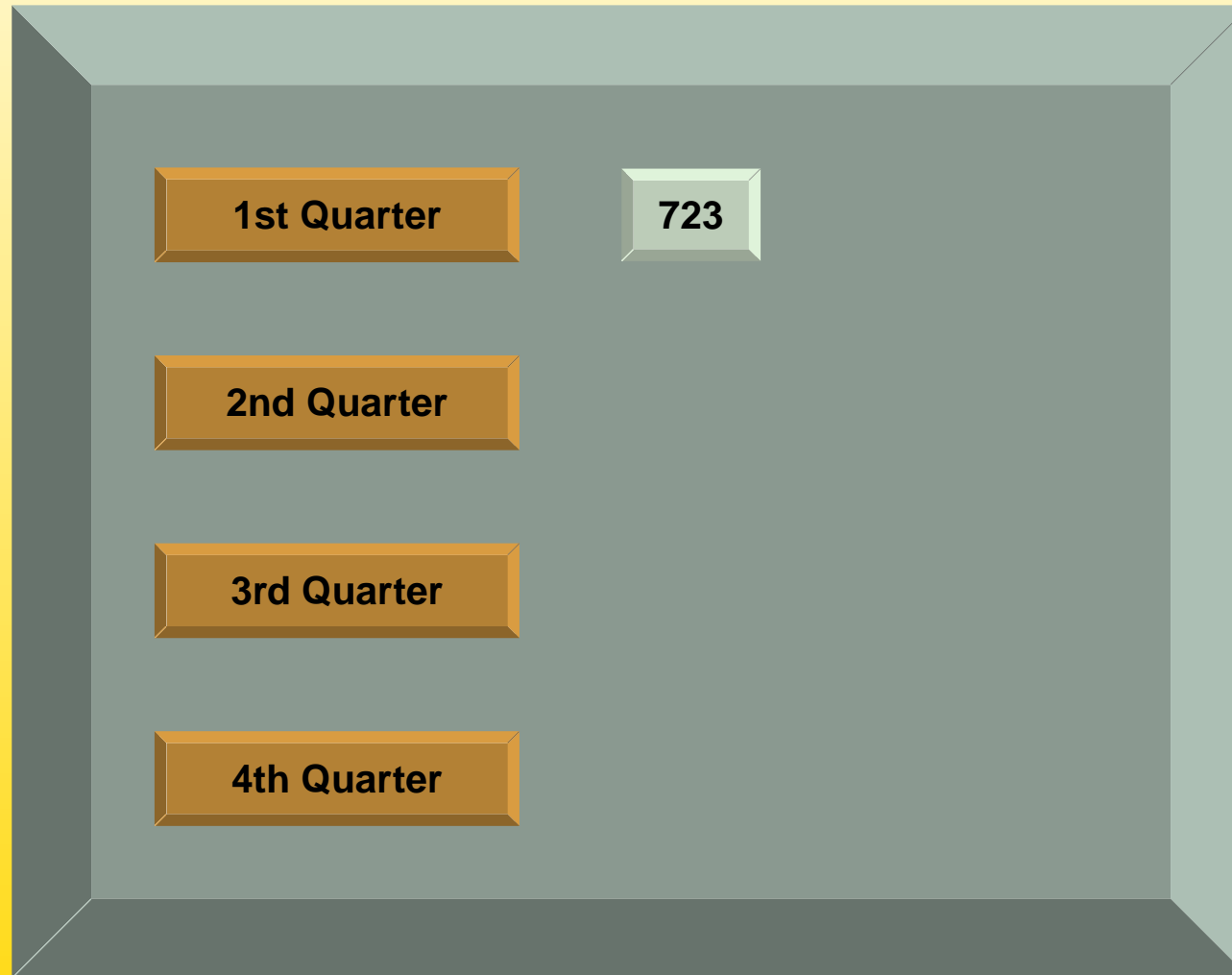
Table 1: Results of the year



End of animation

## 4 – Results of the year

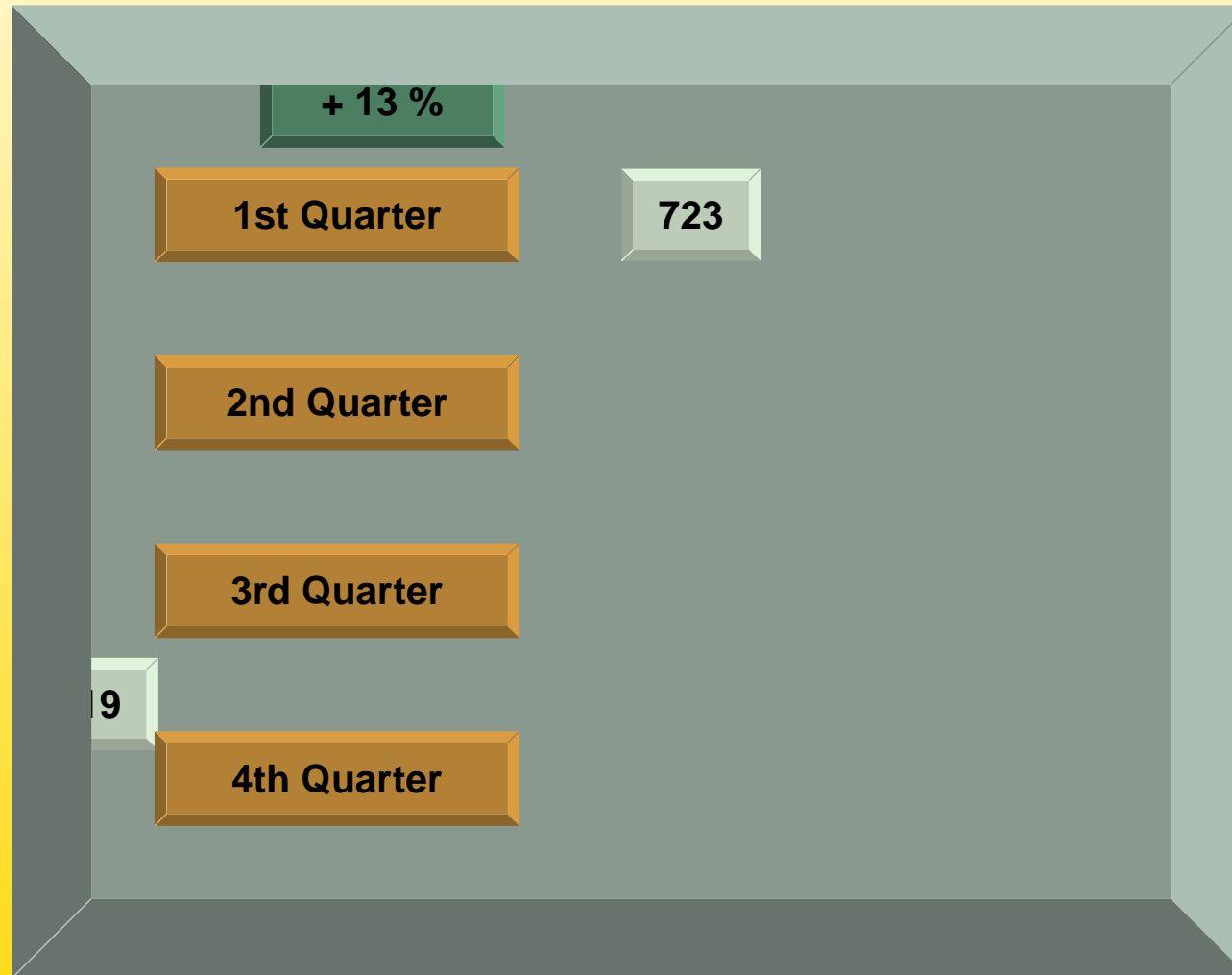
Table 1: Results of the year



End of animation

## 4 – Results of the year

Table 1: Results of the year

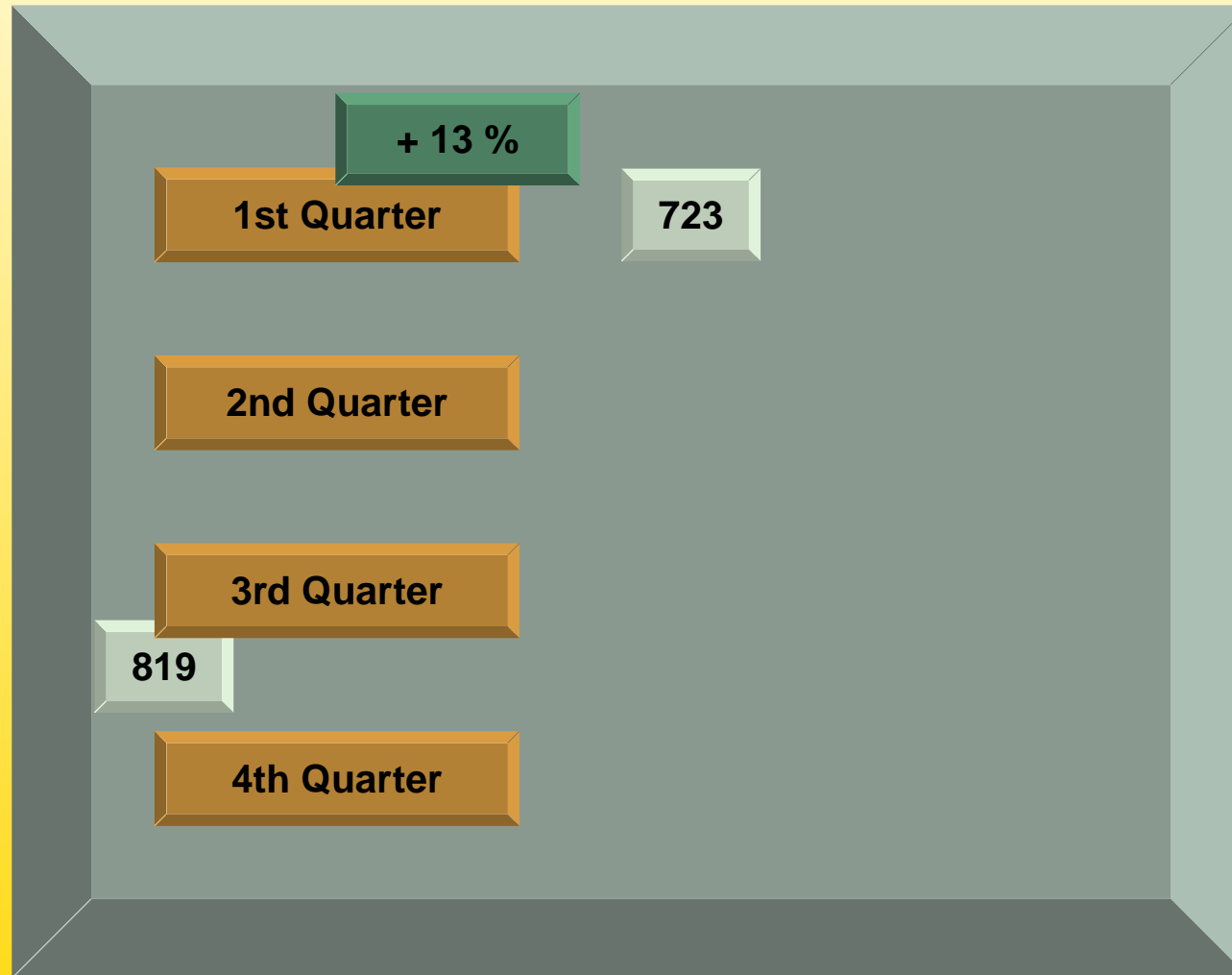


End of animation



## 4 – Results of the year

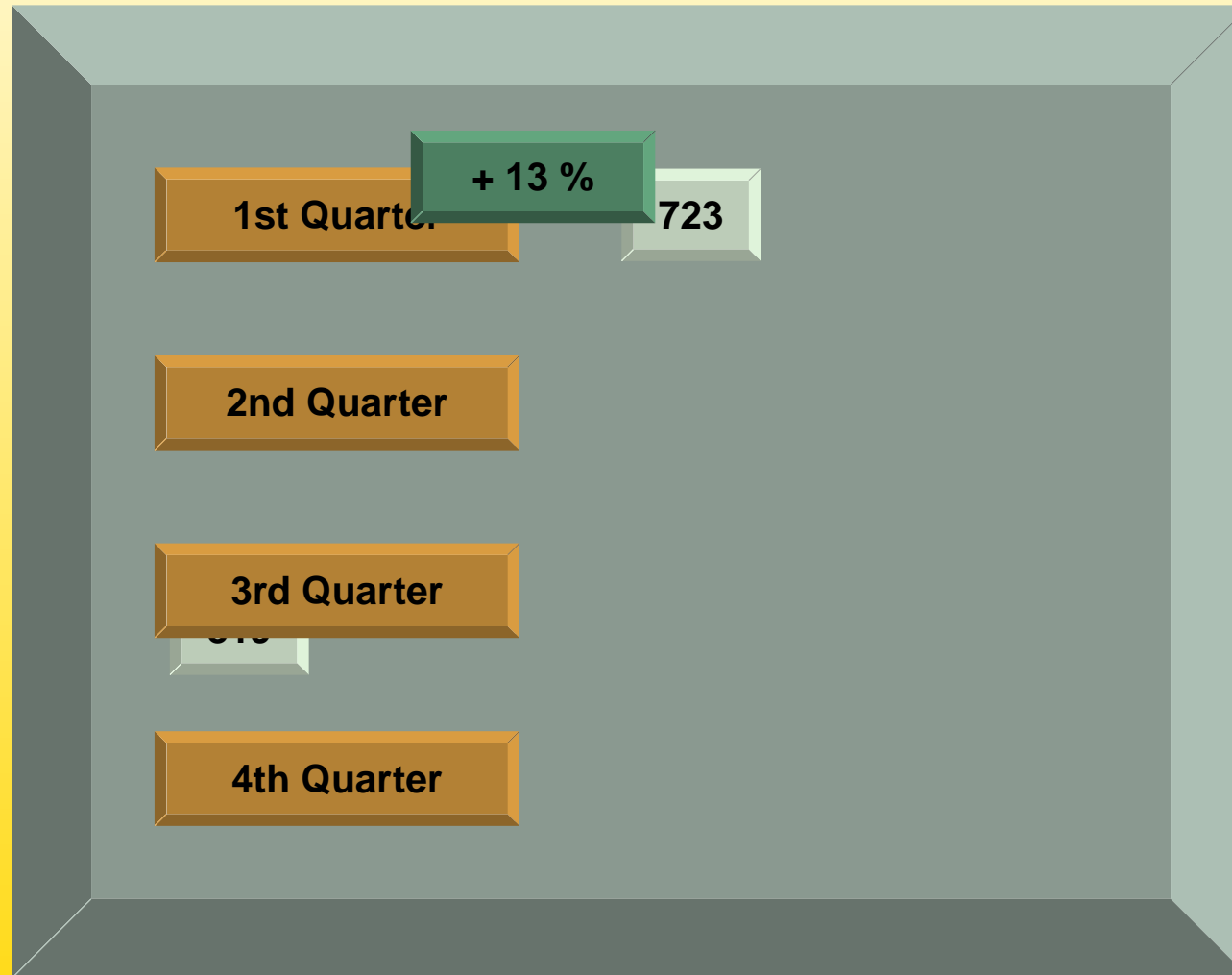
Table 1: Results of the year



End of animation

## 4 – Results of the year

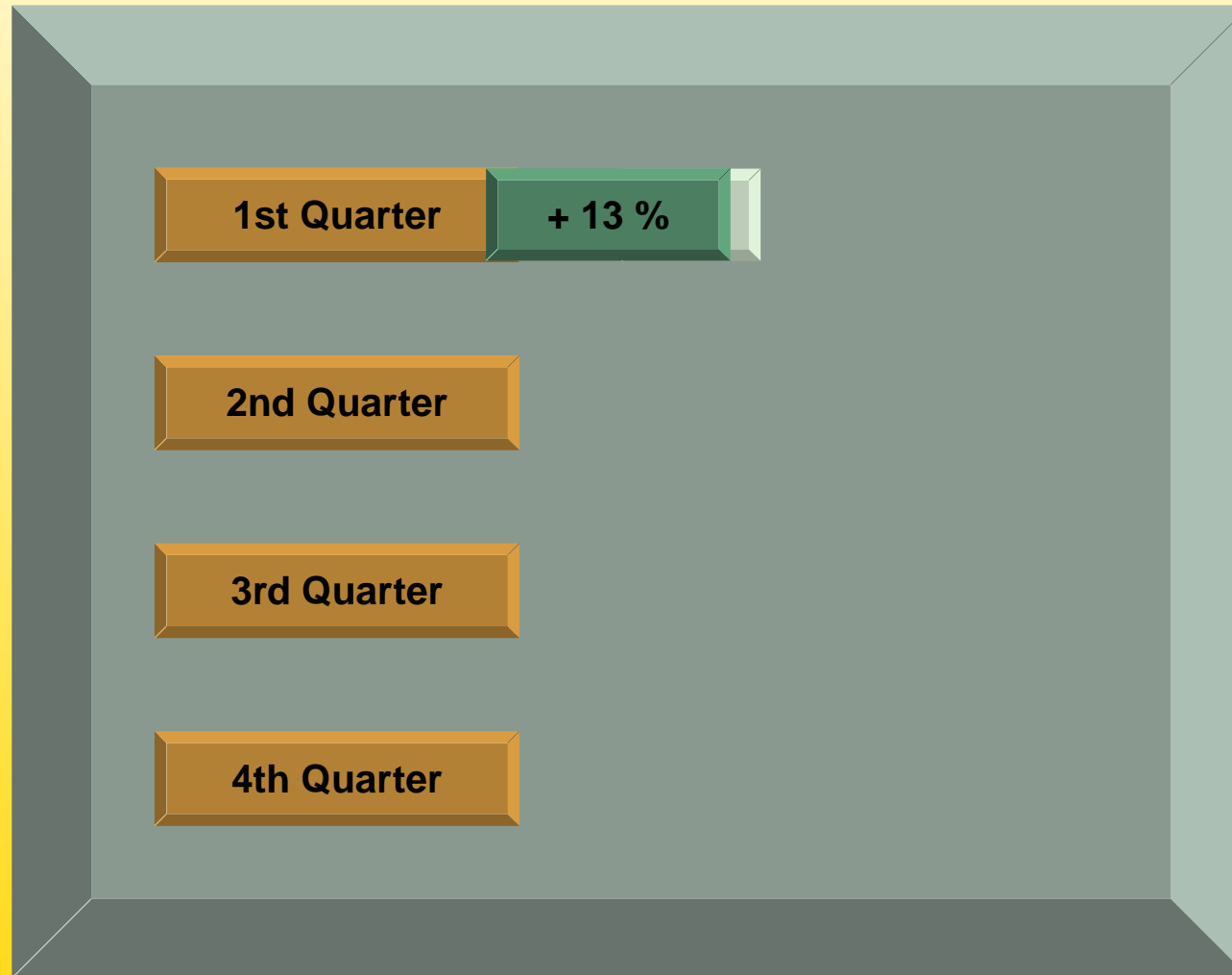
Table 1: Results of the year



End of animation

## 4 – Results of the year

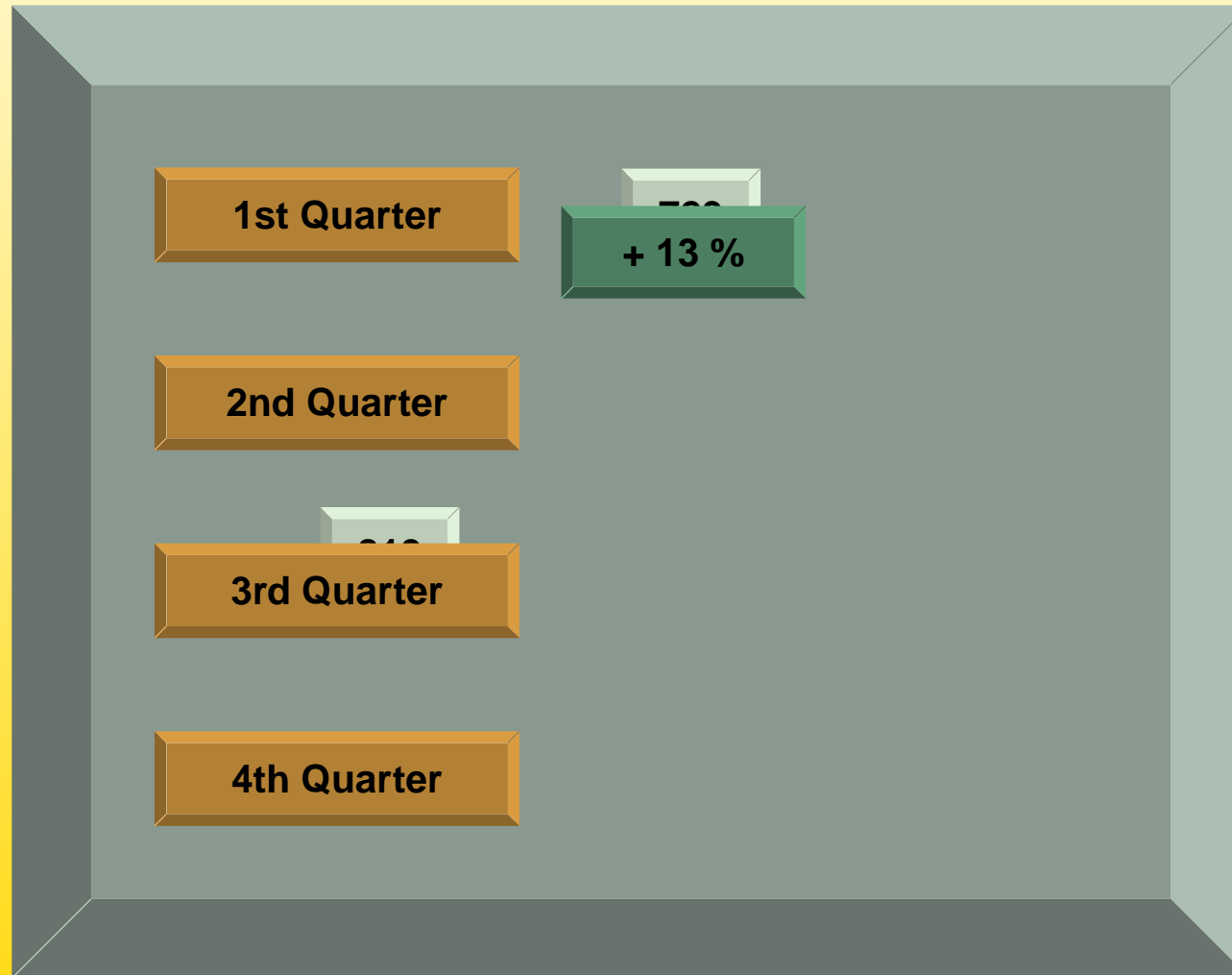
Table 1: Results of the year



End of animation

## 4 – Results of the year

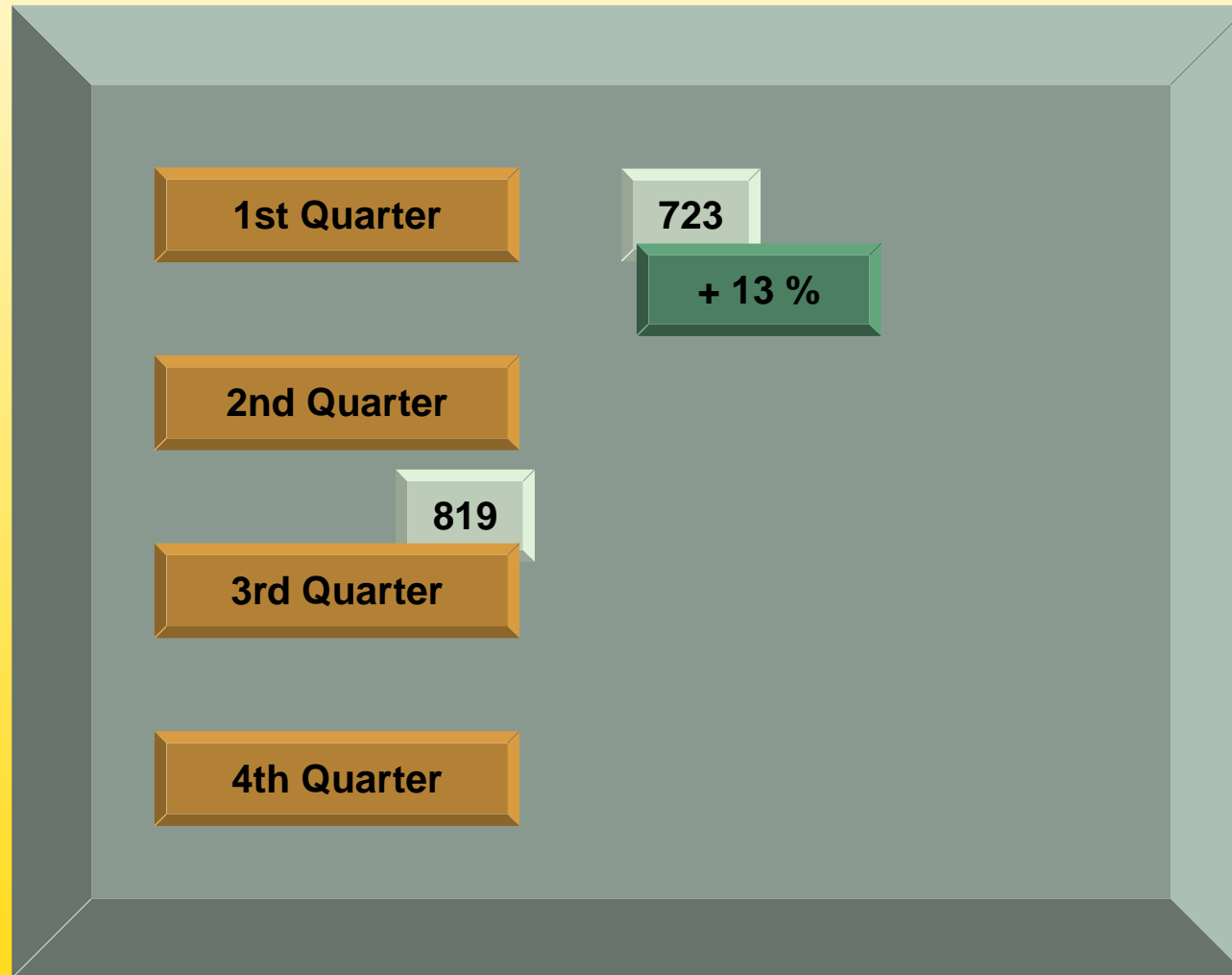
Table 1: Results of the year



End of animation

## 4 – Results of the year

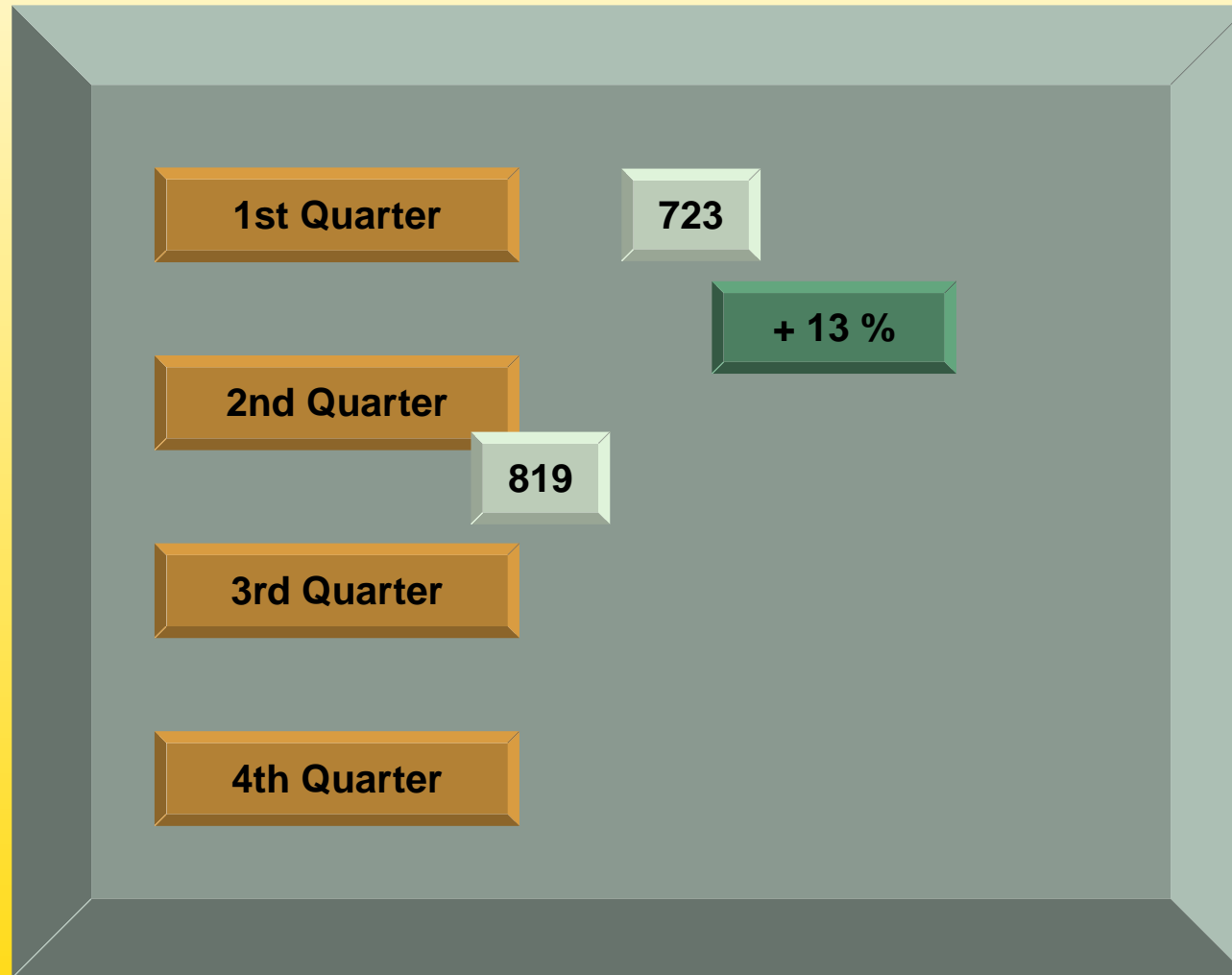
Table 1: Results of the year



End of animation

## 4 – Results of the year

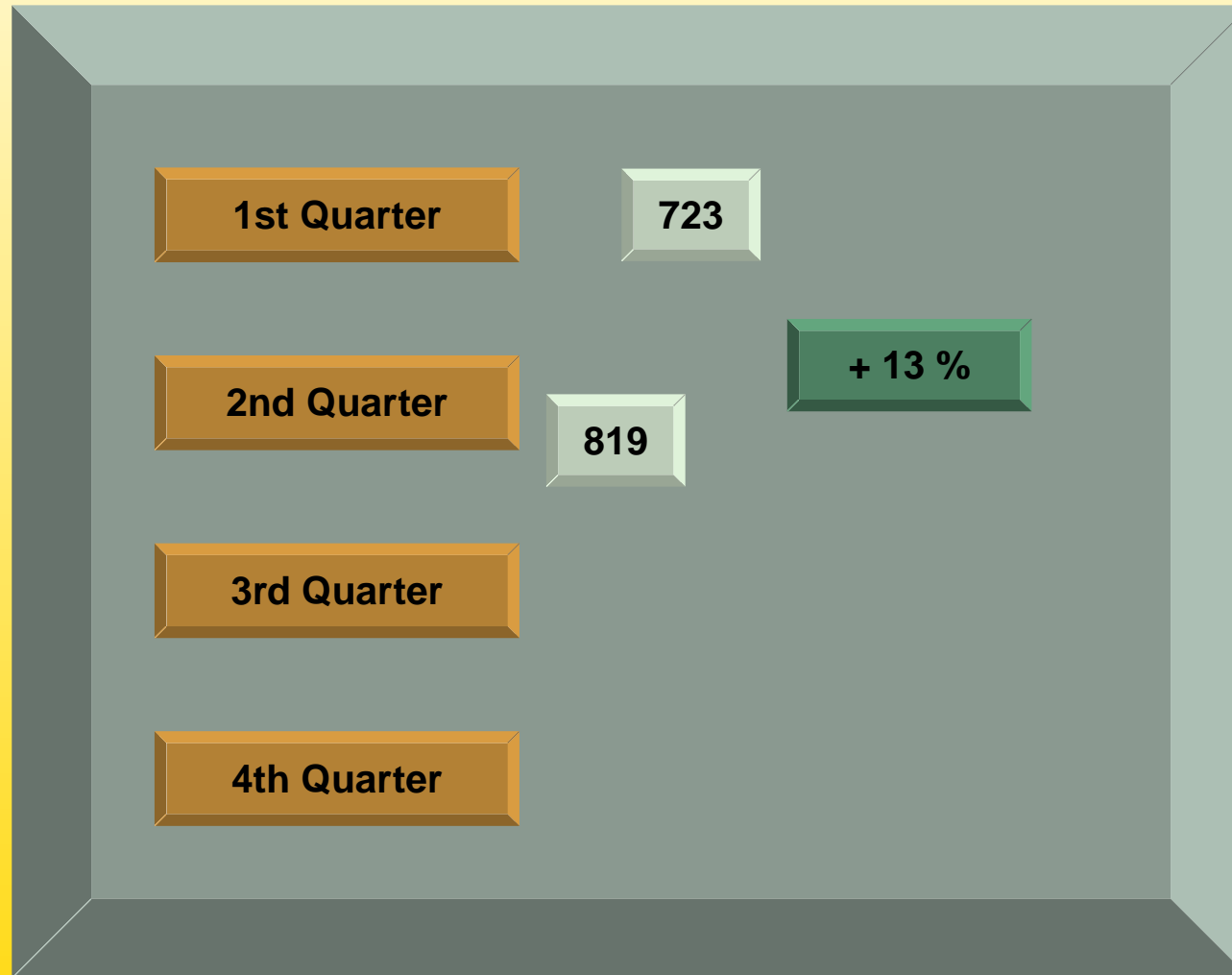
Table 1: Results of the year



End of animation

## 4 – Results of the year

Table 1: Results of the year



End of animation

## 4 – Results of the year

Table 1: Results of the year

1st Quarter	723	
2nd Quarter	819	+ 13 %
3rd Quarter		
4th Quarter		

End of animation



## 4 – Results of the year

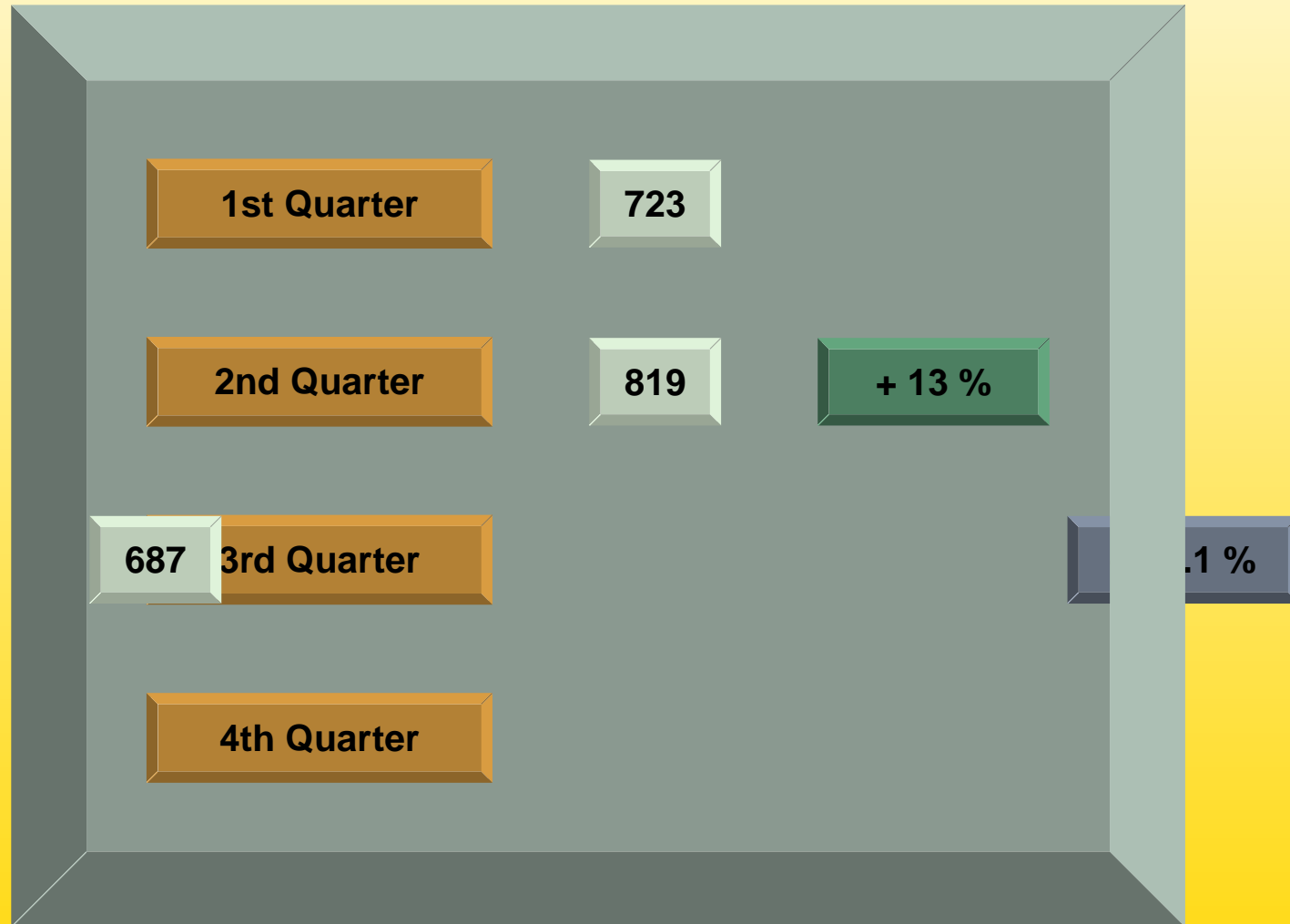
Table 1: Results of the year



End of animation

## 4 – Results of the year

Table 1: Results of the year



End of animation

## 4 – Results of the year

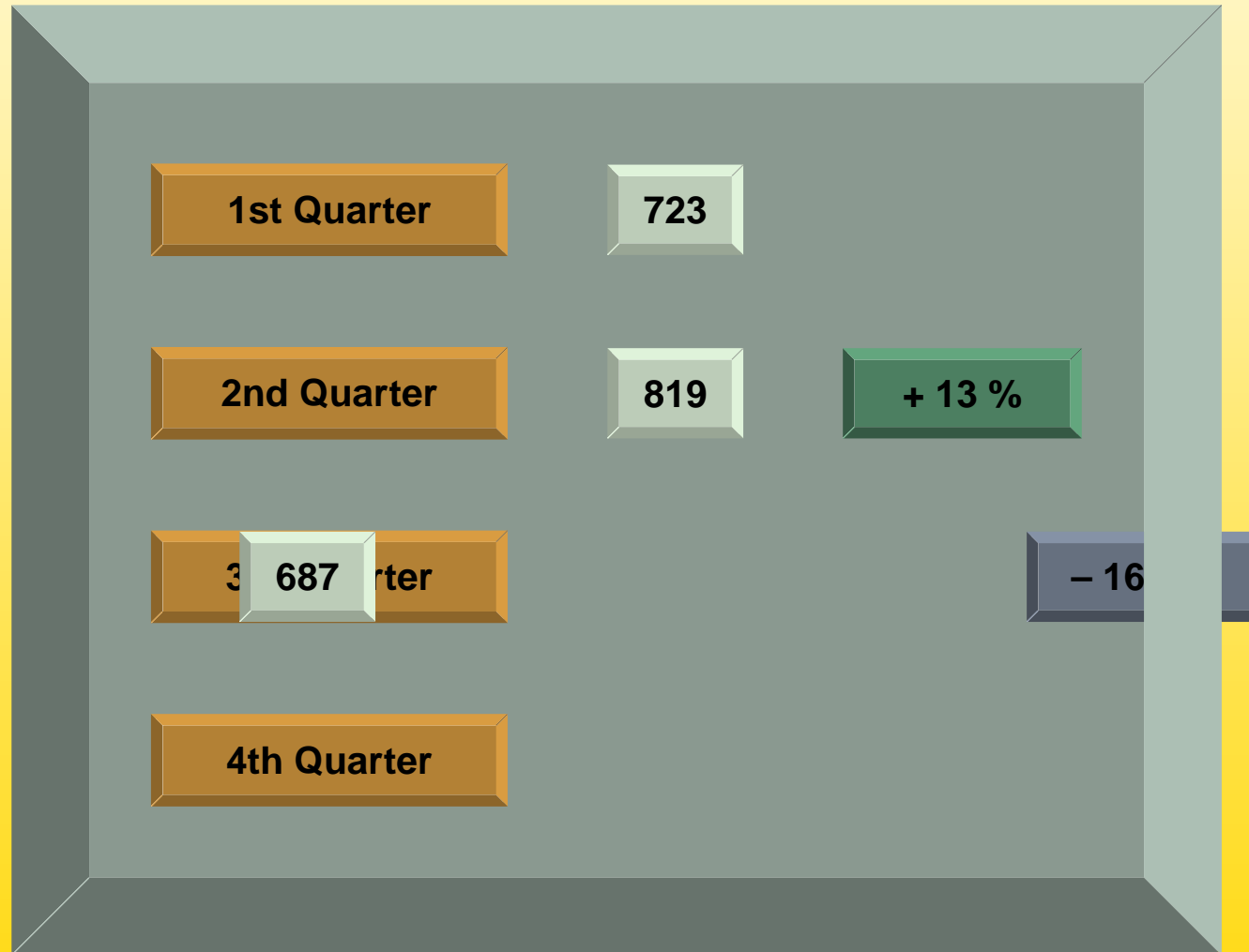
Table 1: Results of the year

1st Quarter	723	
2nd Quarter	819	+ 13 %
687 3rd Quarter		- %
4th Quarter		

End of animation

## 4 – Results of the year

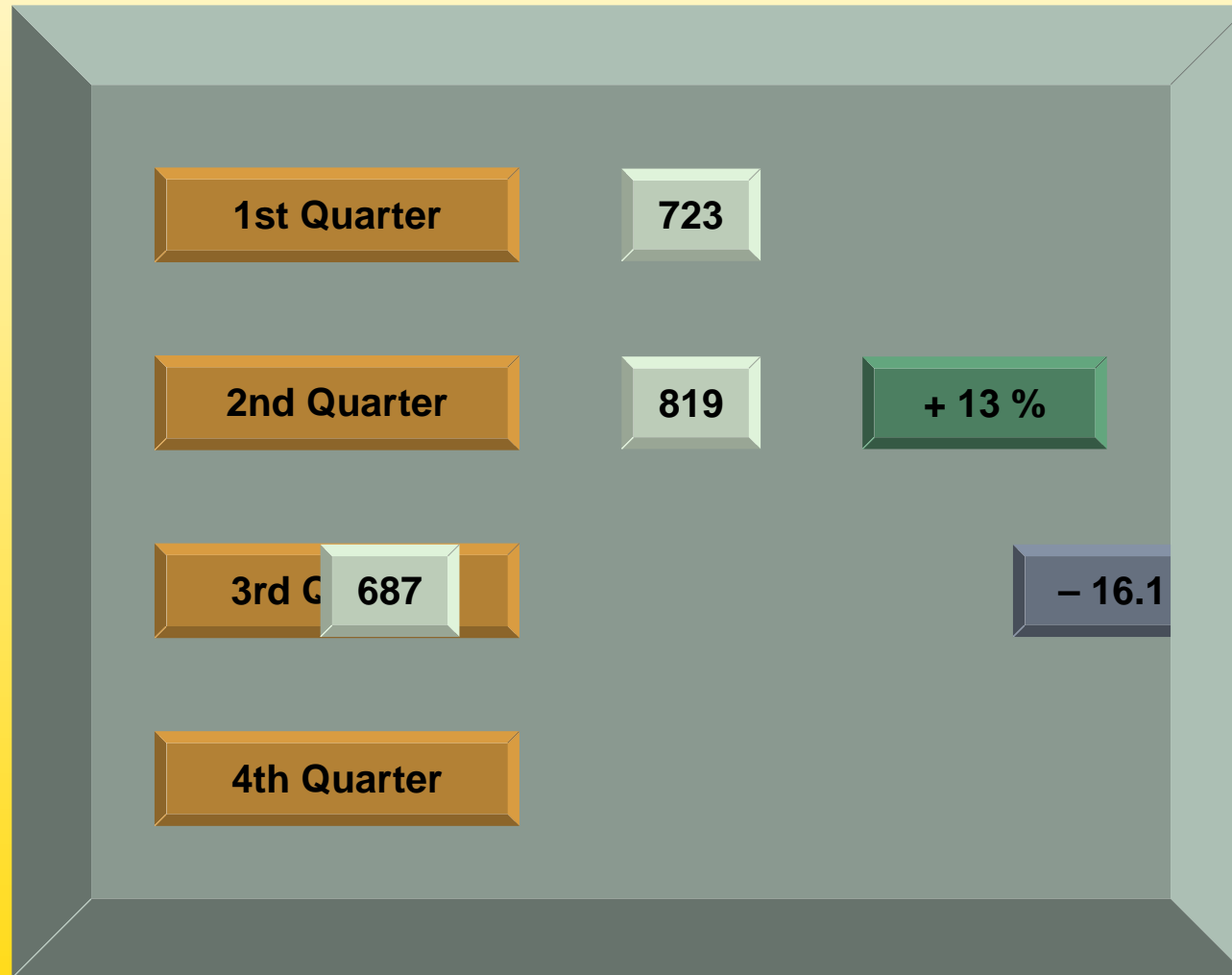
Table 1: Results of the year



End of animation

## 4 – Results of the year

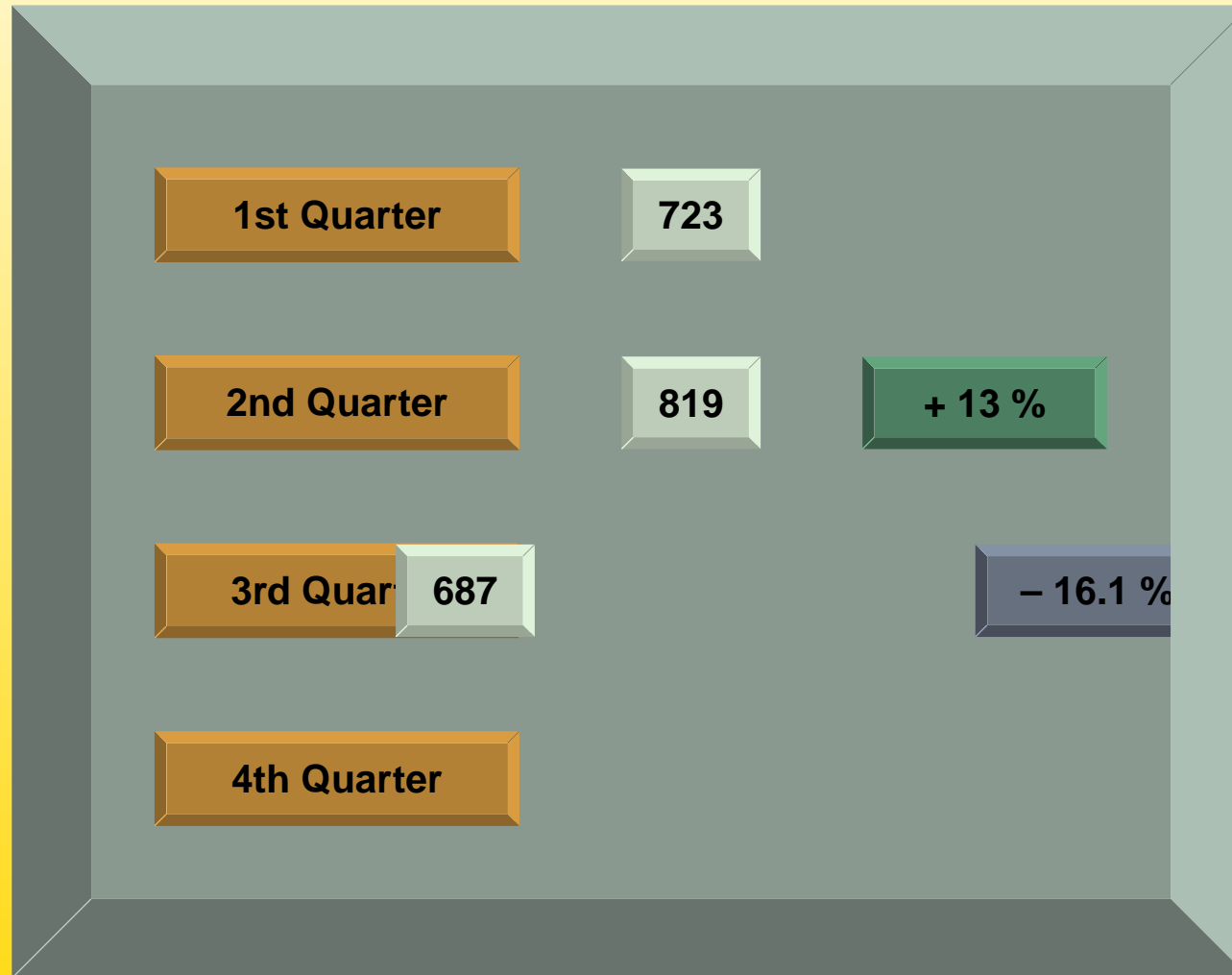
Table 1: Results of the year



End of animation

## 4 – Results of the year

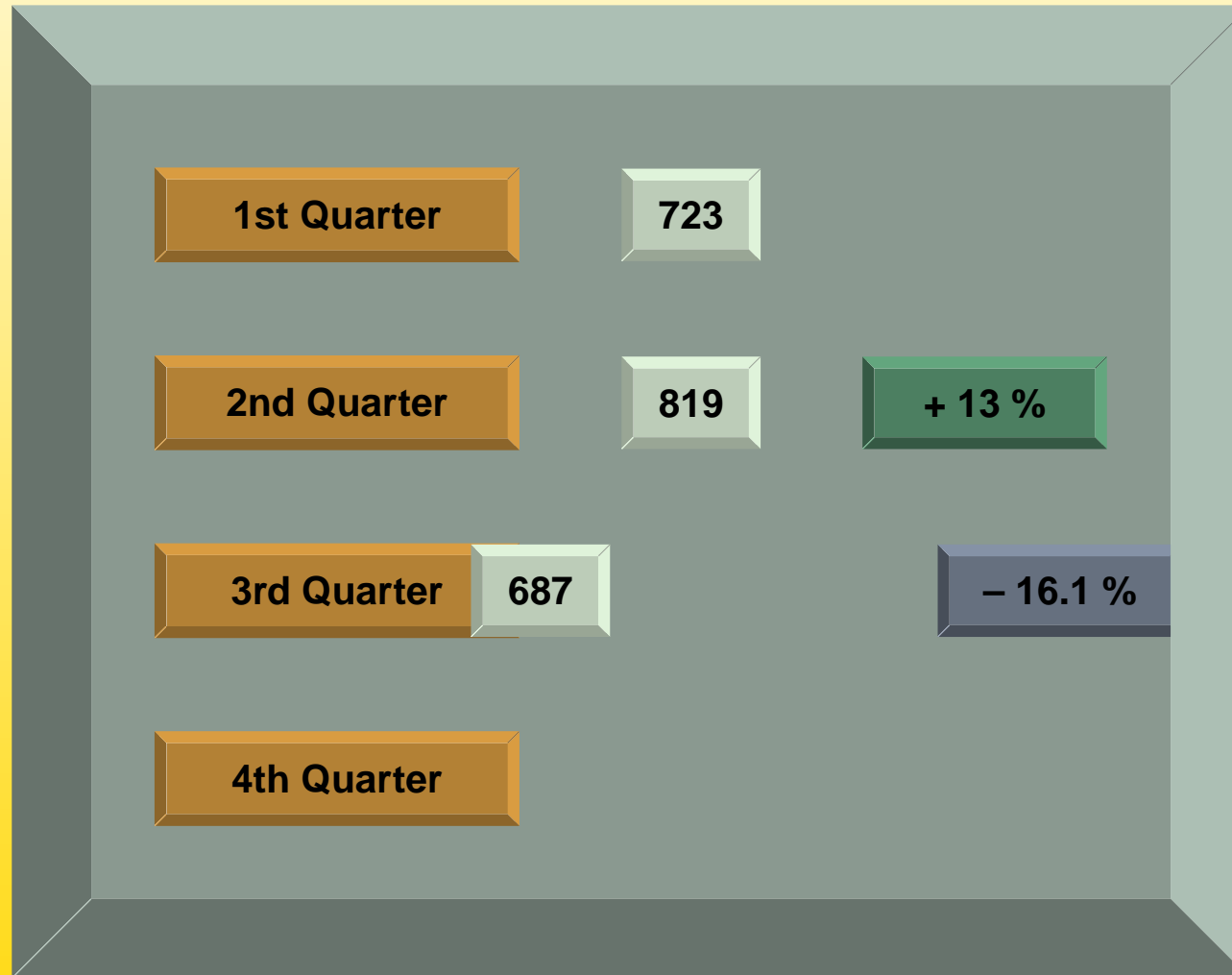
Table 1: Results of the year



End of animation

## 4 – Results of the year

Table 1: Results of the year



End of animation

## 4 – Results of the year

Table 1: Results of the year

1st Quarter	723	
2nd Quarter	819	+ 13 %
3rd Quarter	687	- 16.1 %
4th Quarter		

End of animation



## 4 – Results of the year

Table 1: Results of the year

1st Quarter	723	
2nd Quarter	819	+ 13 %
3rd Quarter	687	- 16.1 %
4th Quarter		

End of animation

## 4 – Results of the year

Table 1: Results of the year

1st Quarter	894	
2nd Quarter	819	+ 13 %
3rd Quarter	687	- 16.1 %
4th Quarter		

End of animation

## 4 – Results of the year

Table 1: Results of the year

1st Quarter	894	
2nd Quarter	819	+ 13 %
3rd Quarter	687	- 16.1 %
4th Quarter		

End of animation

## 4 – Results of the year

Table 1: Results of the year

1st Quarter	723	
2nd Quarter	894 819	+ 13 %
3rd Quarter	687	- 16.1 %
4th Quarter		

End of animation

## 4 – Results of the year

Table 1: Results of the year

1st Quarter	723	
2nd Quarter	894	+ 13 %
3rd Quarter	687	- 16.1 %
4th Quarter		

End of animation

## 4 – Results of the year

Table 1: Results of the year

1st Quarter	723	
2nd Quarter	819	+ 13 %
	894	
3rd Quarter	687	- 16.1 %
4th Quarter		

End of animation

+ 30.1 %

## 4 – Results of the year

Table 1: Results of the year

1st Quarter	723	
2nd Quarter	819	+ 13 %
3rd Quarter	894	- 16.1 %
4th Quarter		

+ 30.1 %

End of animation

## 4 – Results of the year

Table 1: Results of the year

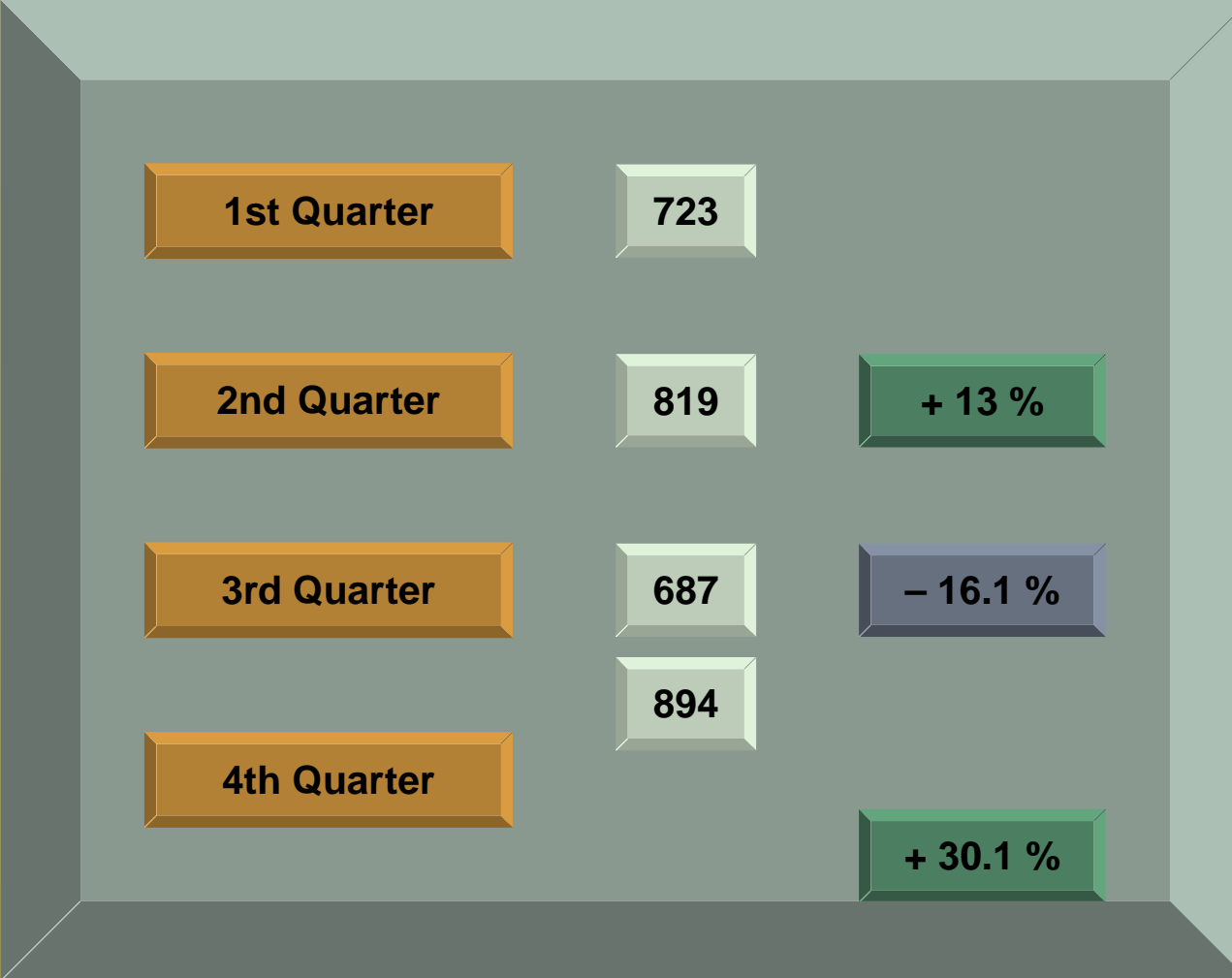
1st Quarter	723	
2nd Quarter	819	+ 13 %
3rd Quarter	894	- 16.1 %
4th Quarter		

End of animation



## 4 – Results of the year

Table 1: Results of the year

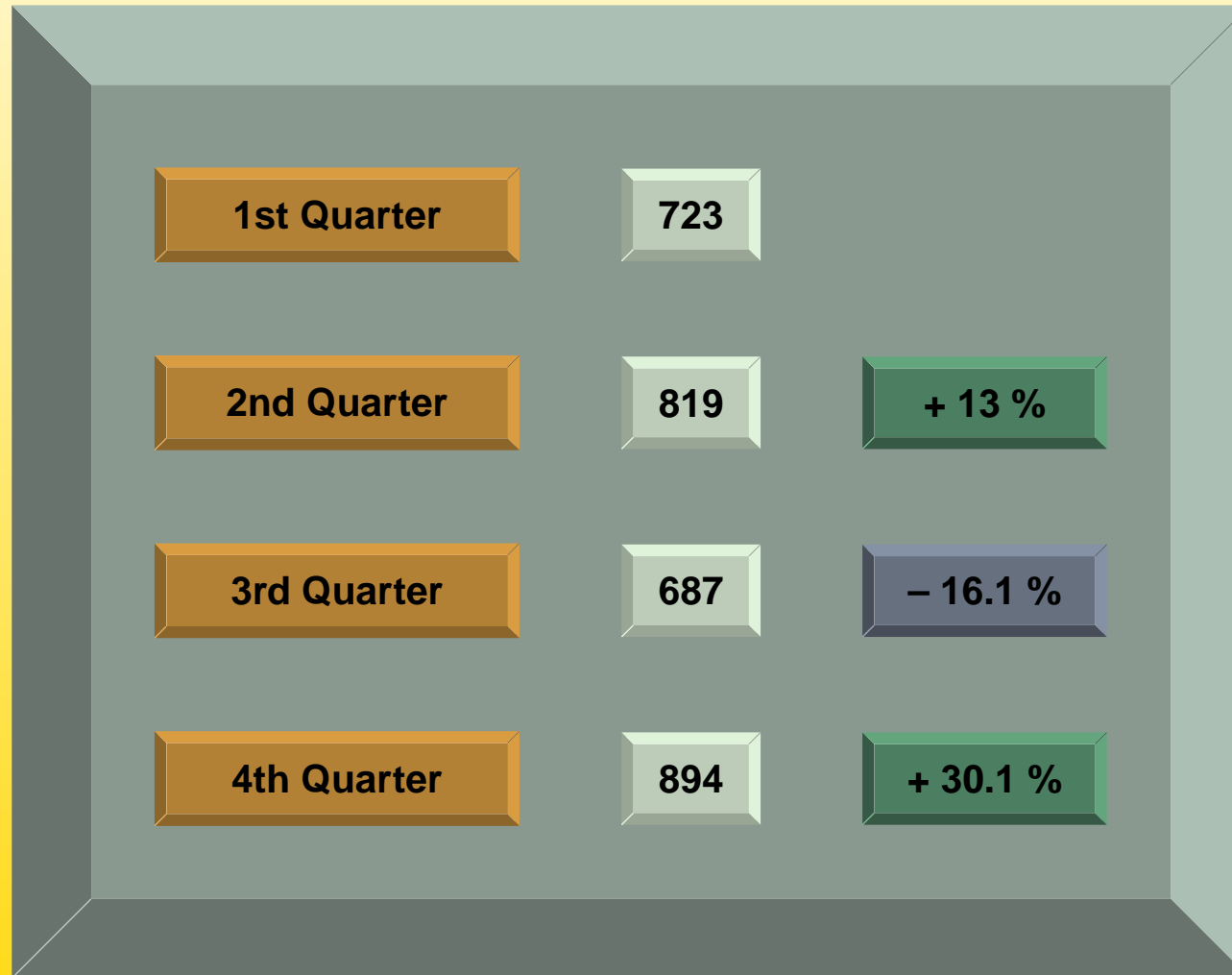


1st Quarter	723	
2nd Quarter	819	+ 13 %
3rd Quarter	687	- 16.1 %
4th Quarter	894	+ 30.1 %

End of animation

## 4 – Results of the year

Table 1: Results of the year



1st Quarter	723	
2nd Quarter	819	+ 13 %
3rd Quarter	687	– 16.1 %
4th Quarter	894	+ 30.1 %

End of animation

5 – Clock

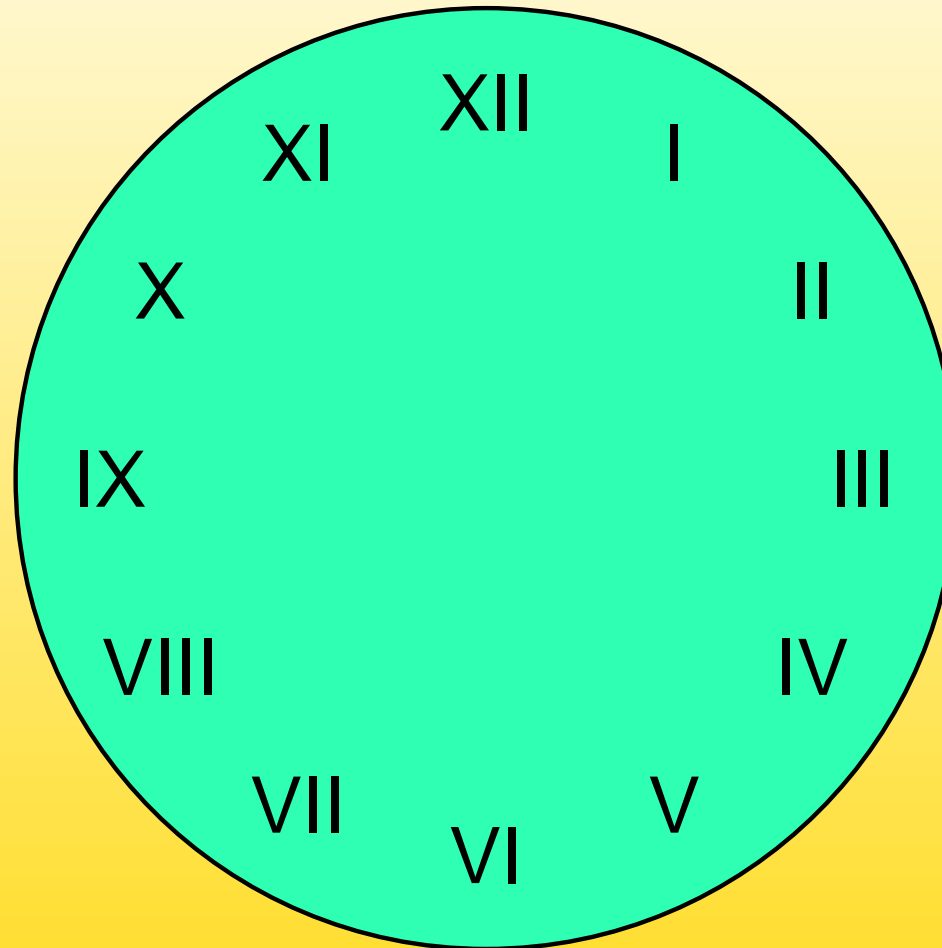


Figure 3: Clock

End of animation

5 – Clock

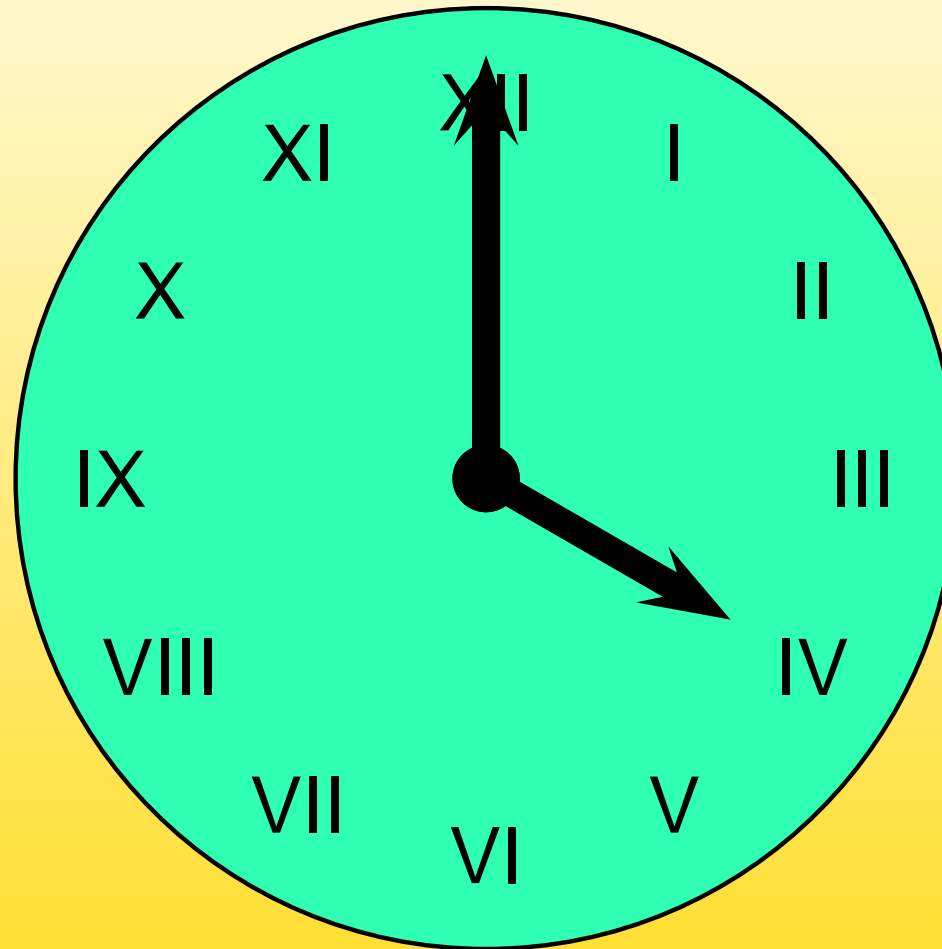


Figure 3: Clock

End of animation

5 – Clock

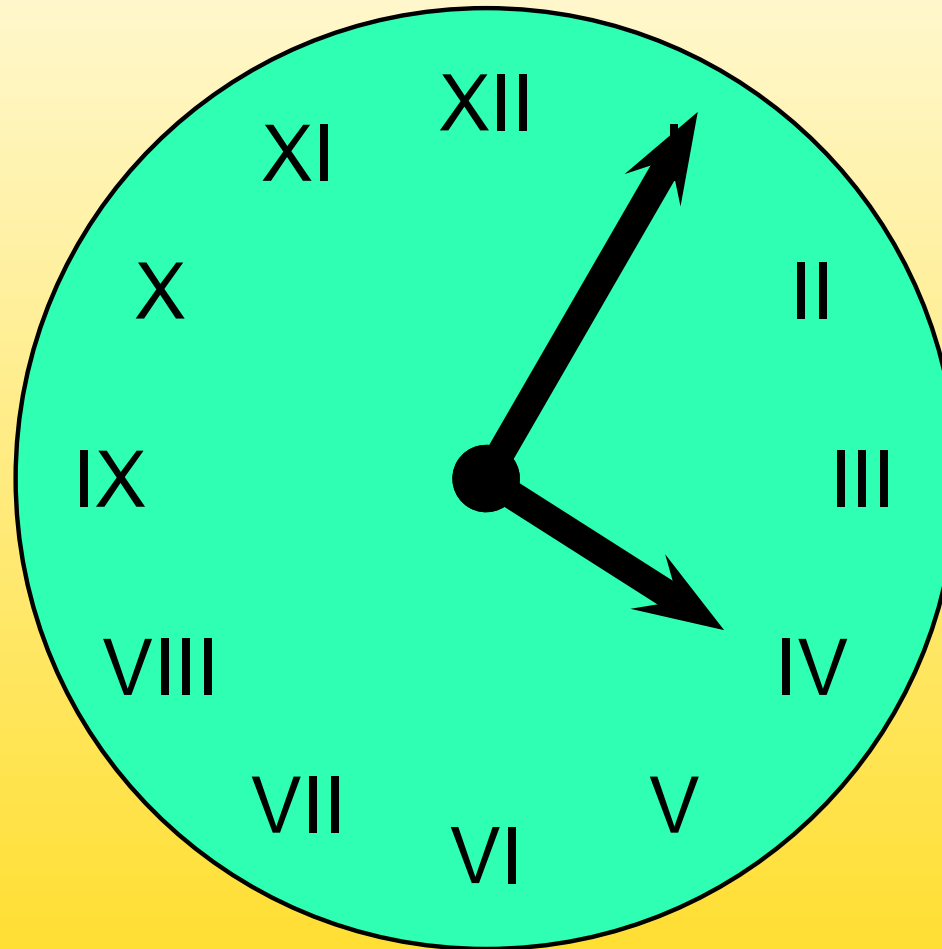


Figure 3: Clock

End of animation

5 – Clock

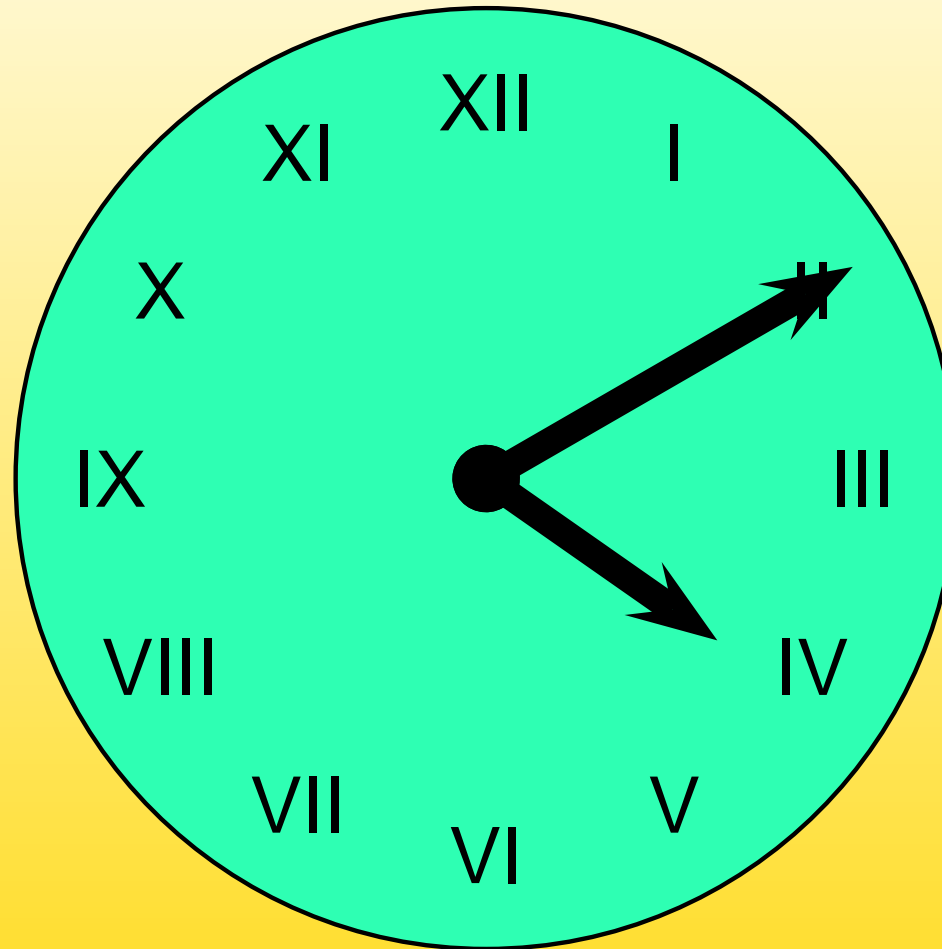


Figure 3: Clock

End of animation

5 – Clock

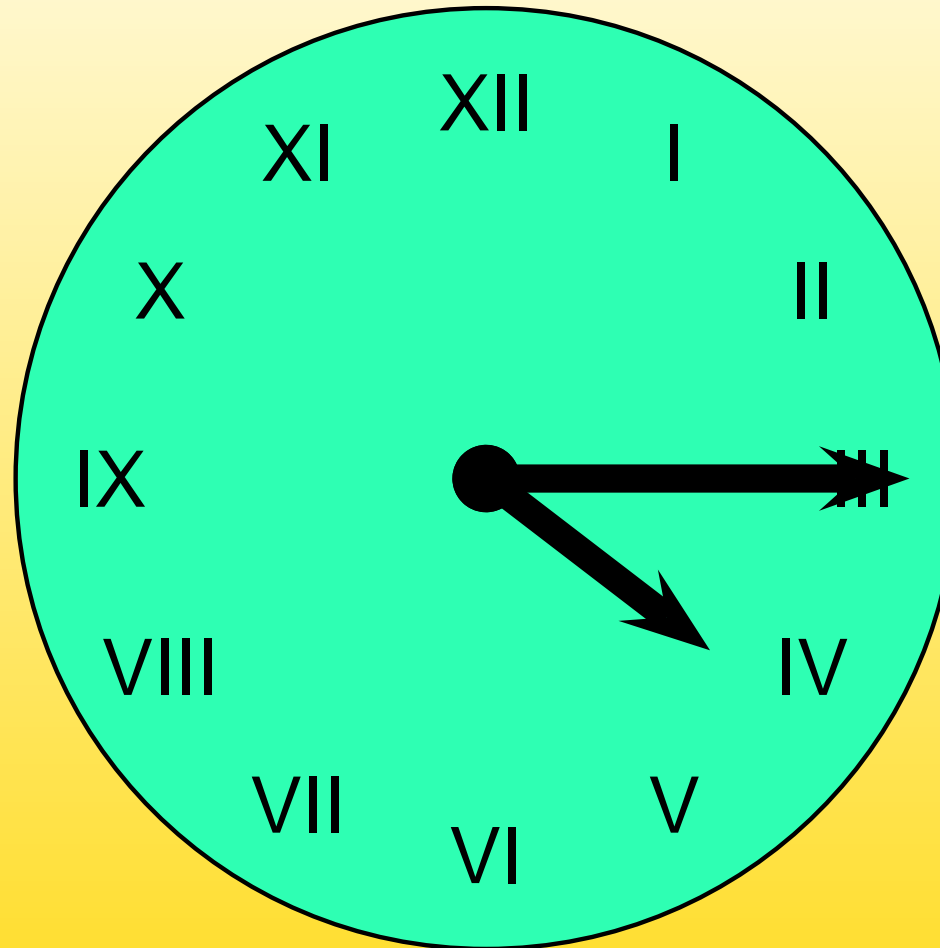


Figure 3: Clock

End of animation

5 – Clock

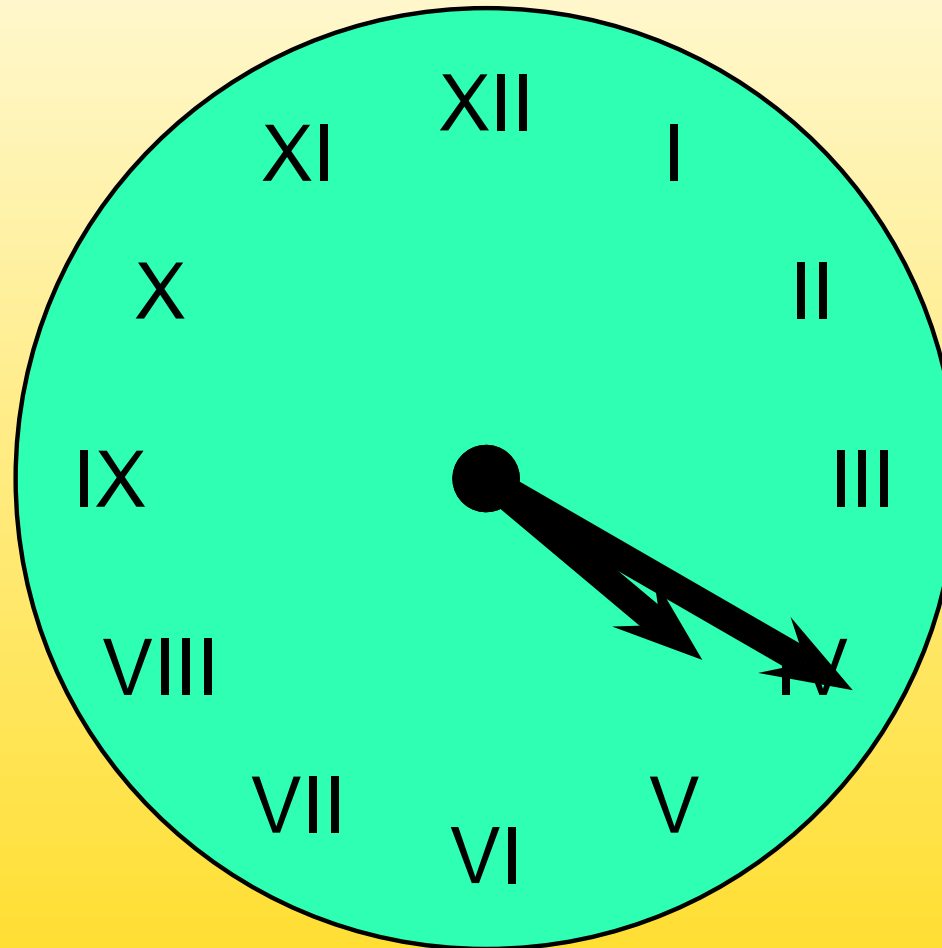


Figure 3: Clock

End of animation



5 – Clock



Figure 3: Clock

End of animation

5 – Clock

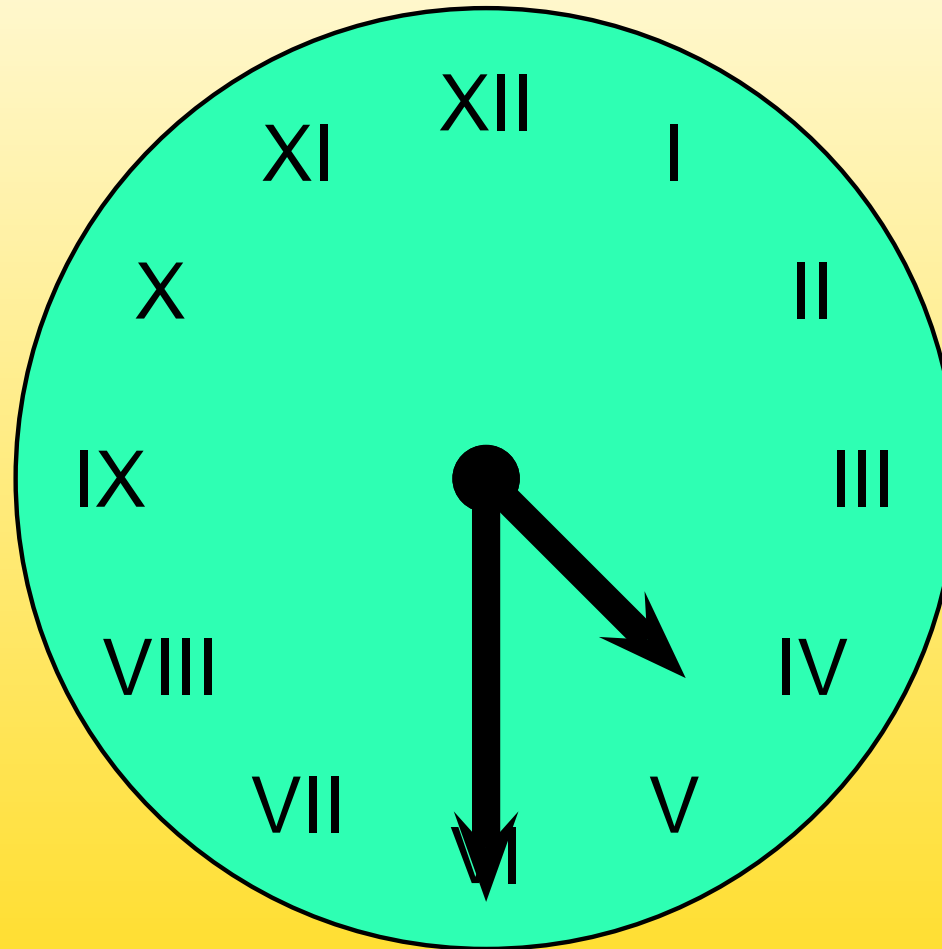


Figure 3: Clock

End of animation

5 – Clock

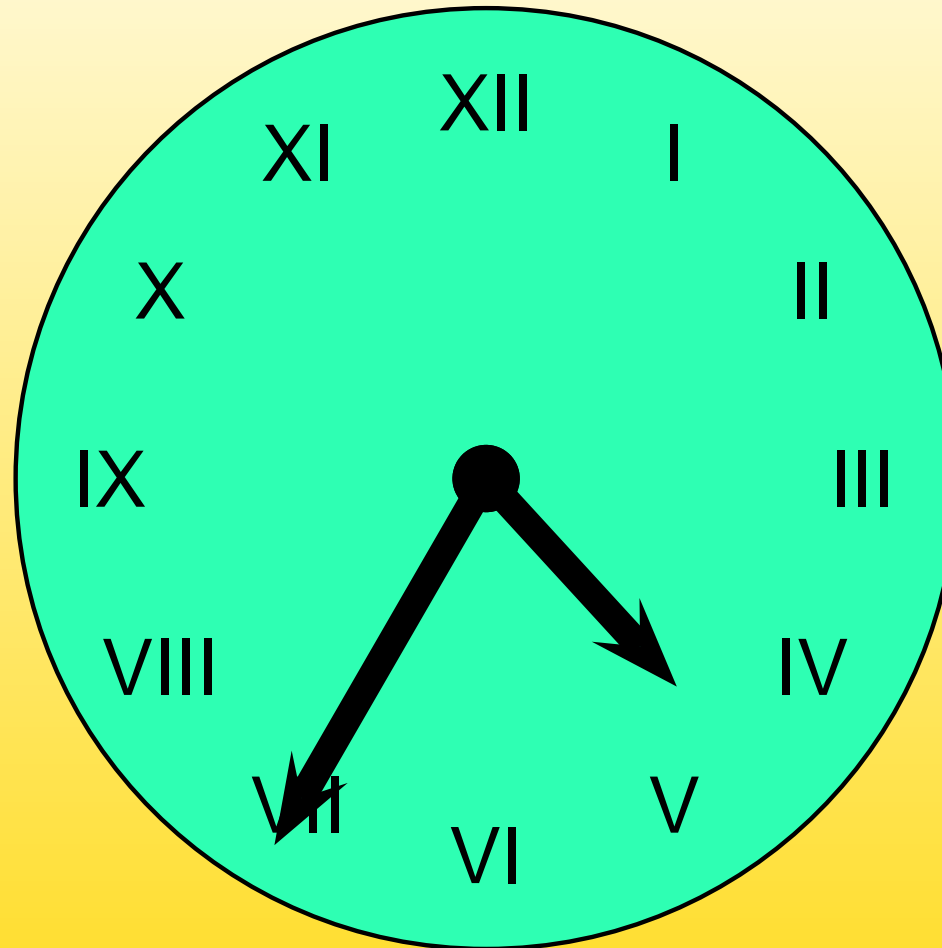


Figure 3: Clock

End of animation

5 – Clock

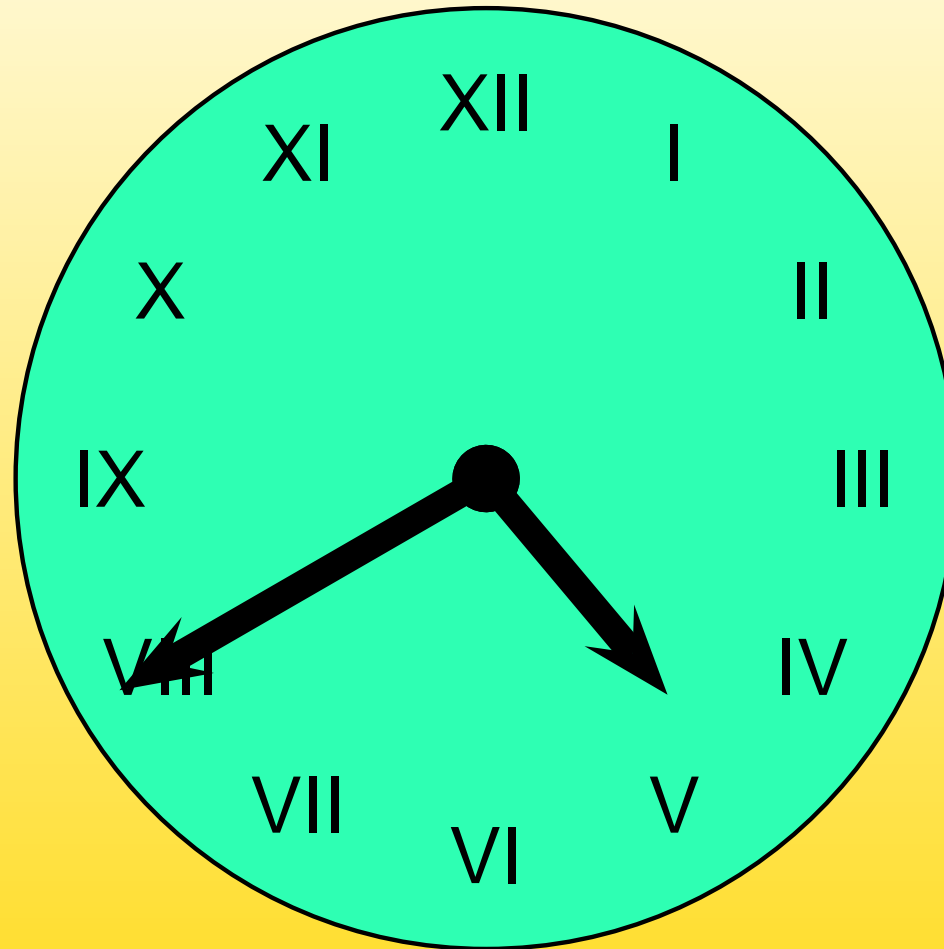


Figure 3: Clock

End of animation

5 – Clock

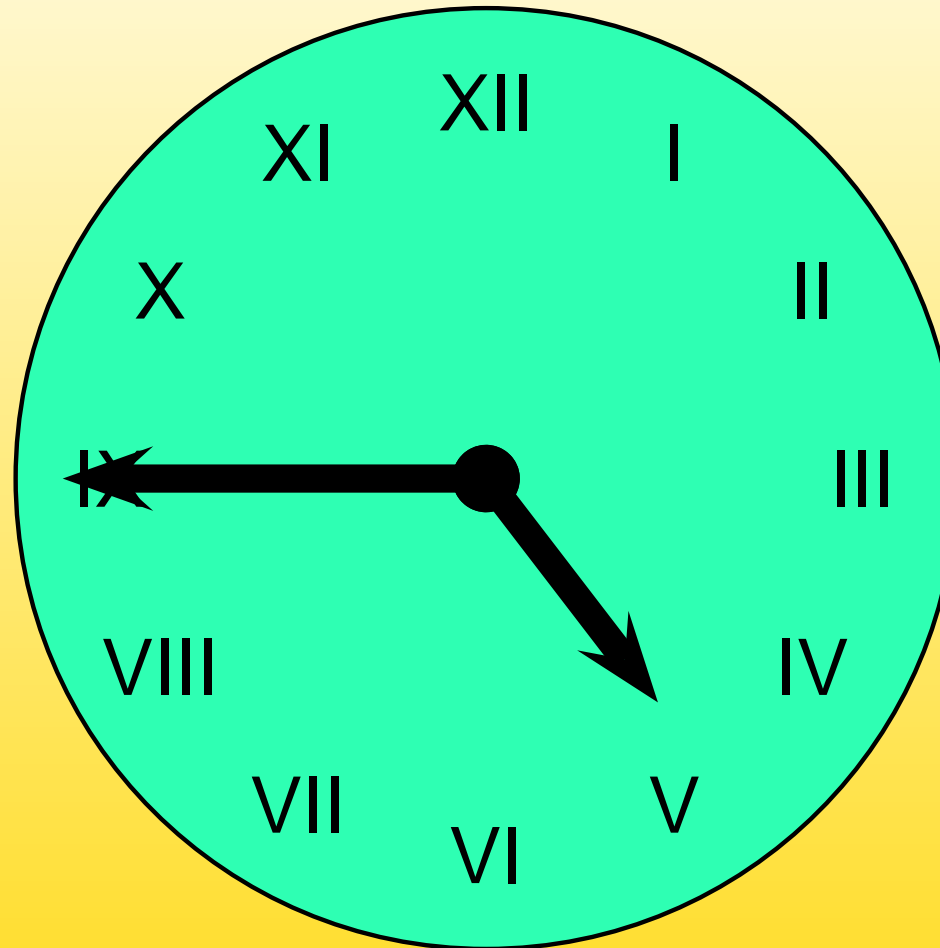


Figure 3: Clock

End of animation

5 – Clock

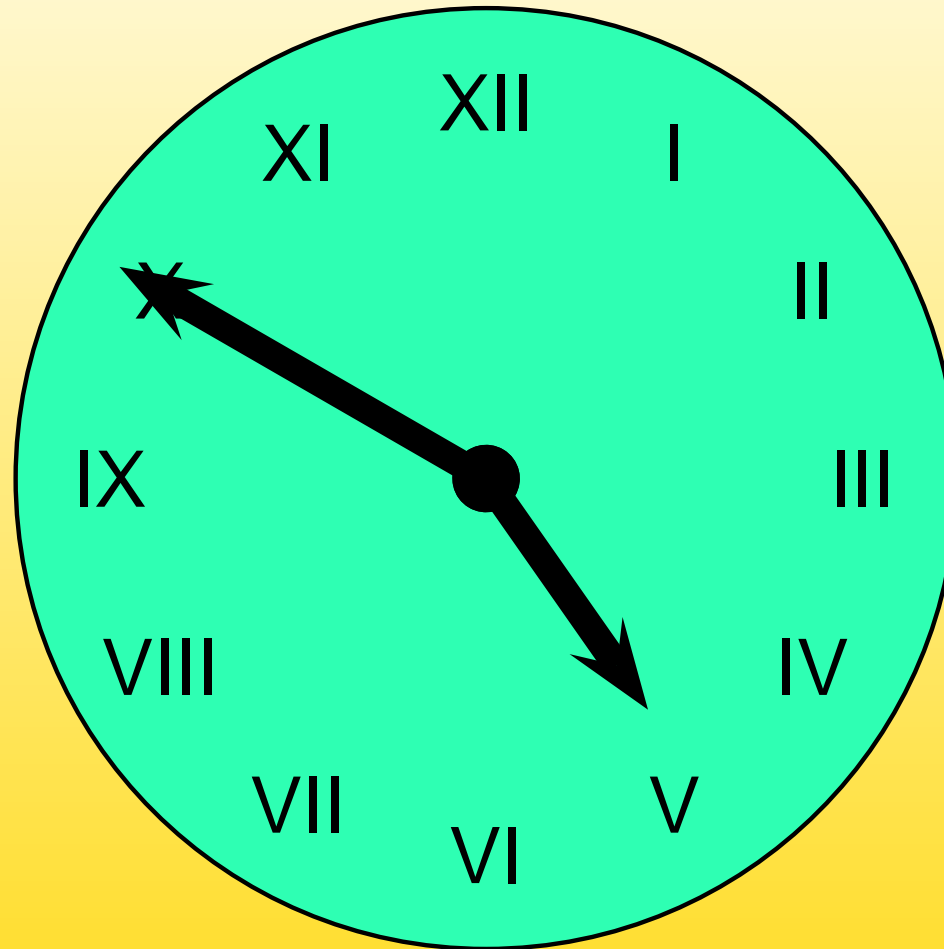


Figure 3: Clock

End of animation

5 – Clock

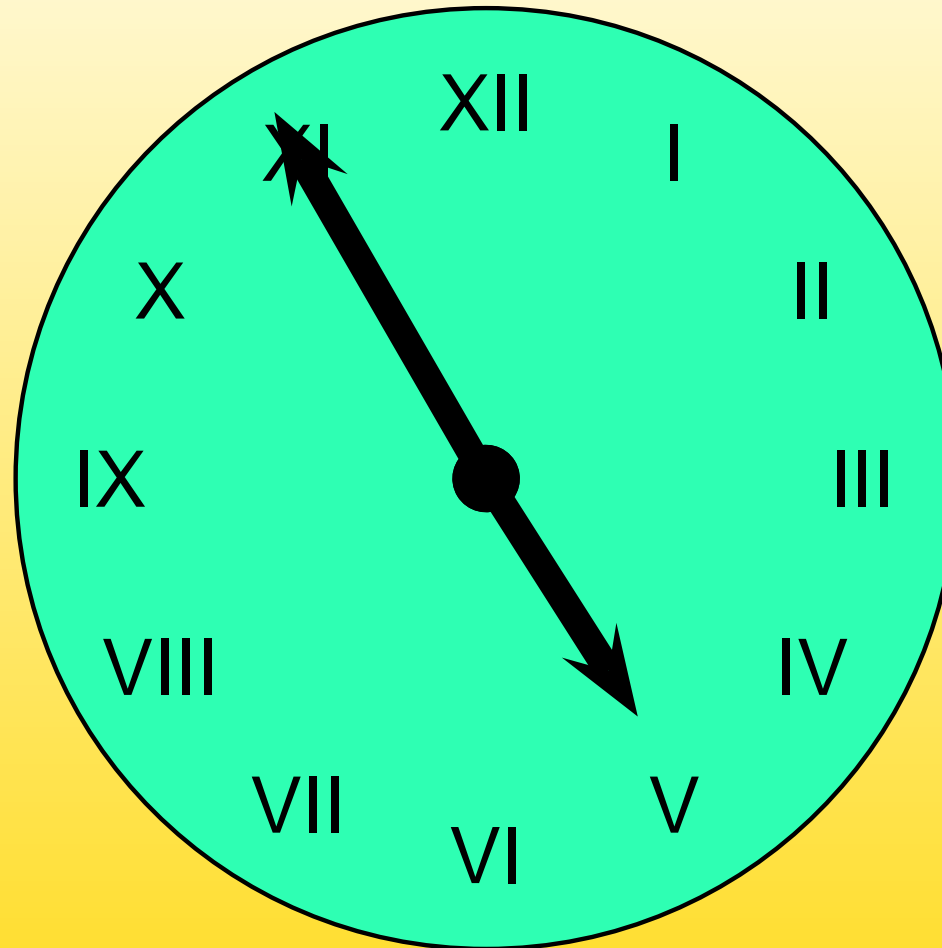


Figure 3: Clock

End of animation

5 – Clock

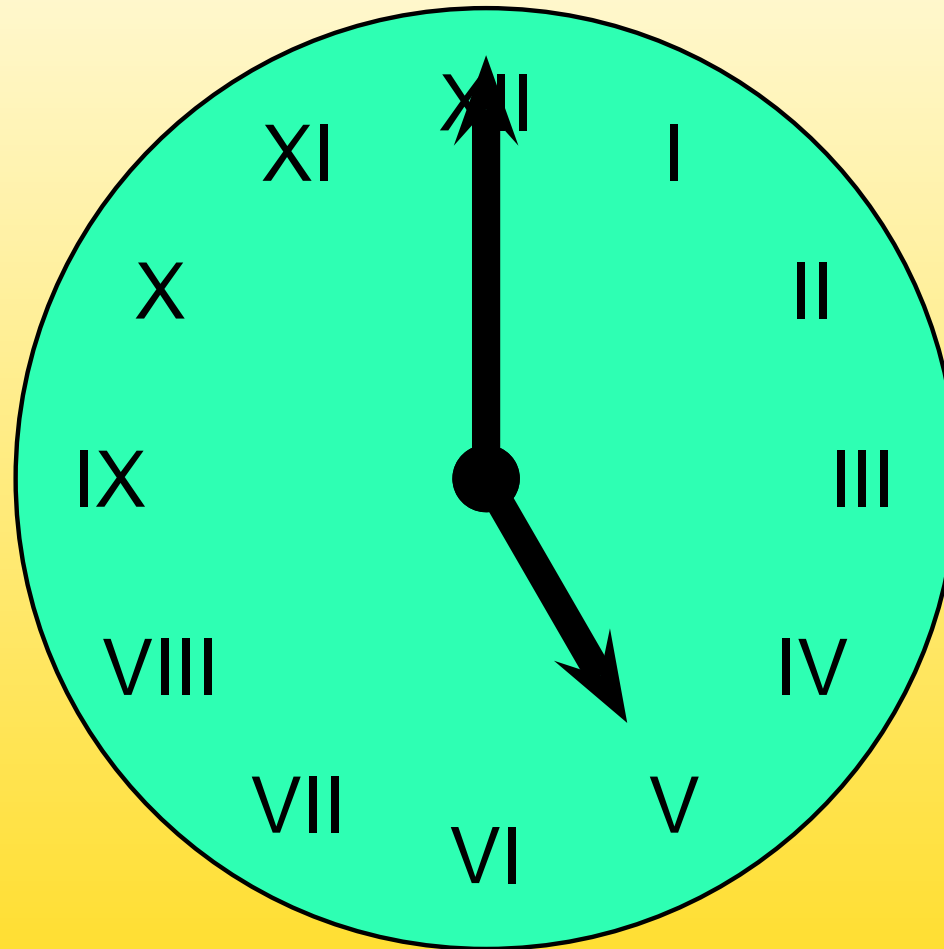


Figure 3: Clock

End of animation





Figure 3: Clock

End of animation



Figure 3: Clock

End of animation



Figure 3: Clock

End of animation



Figure 3: Clock

End of animation



Figure 3: Clock

End of animation



Figure 3: Clock

End of animation



Figure 3: Clock

End of animation



Figure 3: Clock

End of animation





Figure 3: Clock

End of animation



Figure 3: Clock

End of animation



Figure 3: Clock

End of animation



Figure 3: Clock

End of animation



Figure 3: Clock

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m

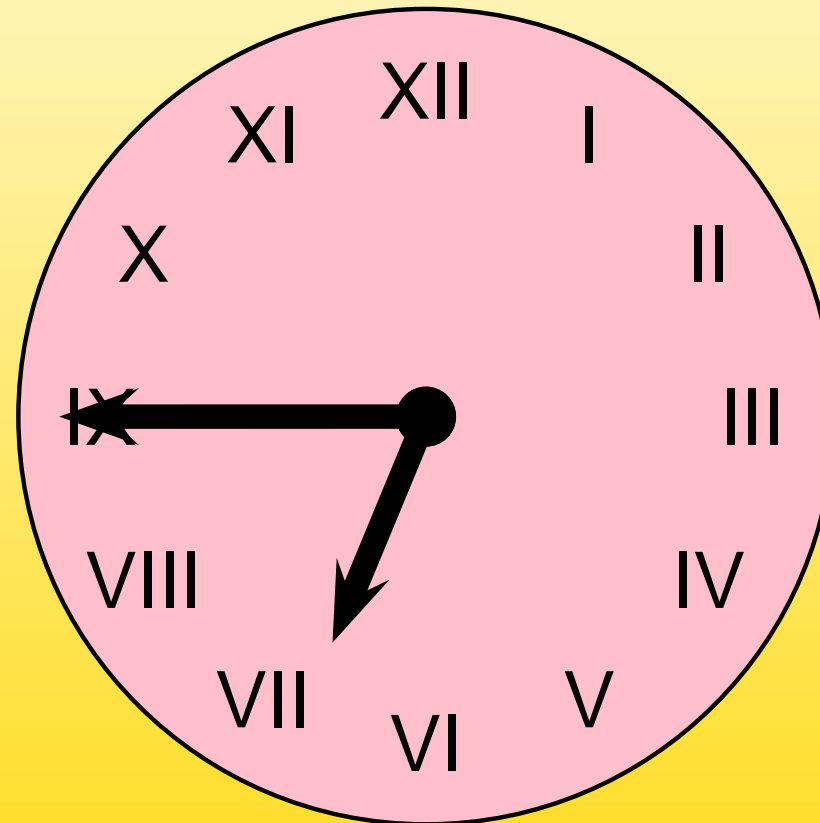


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 01s

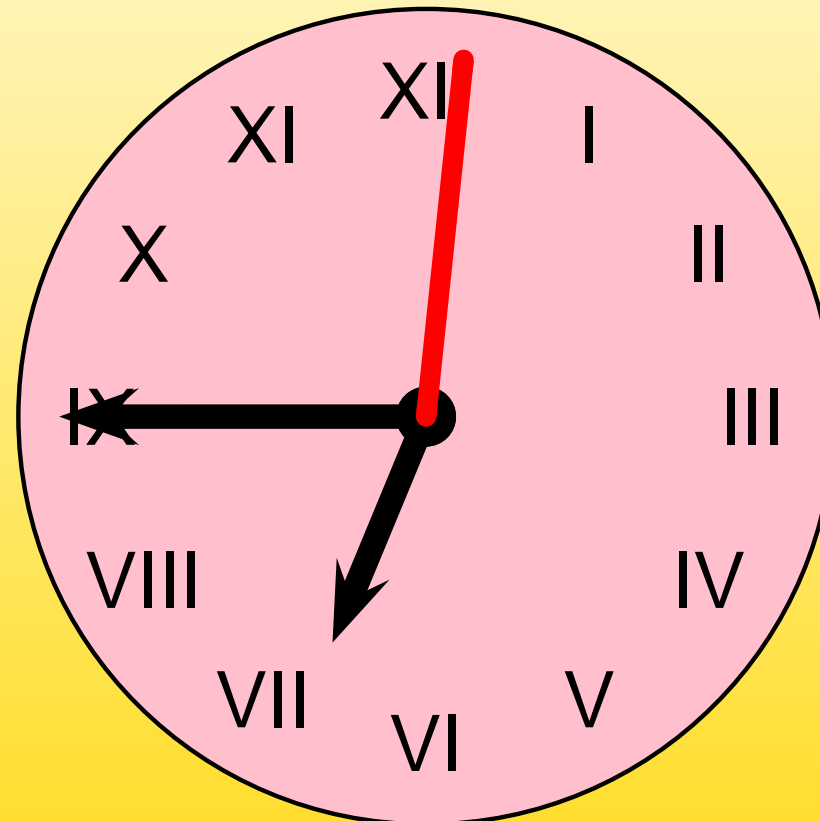


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 02s

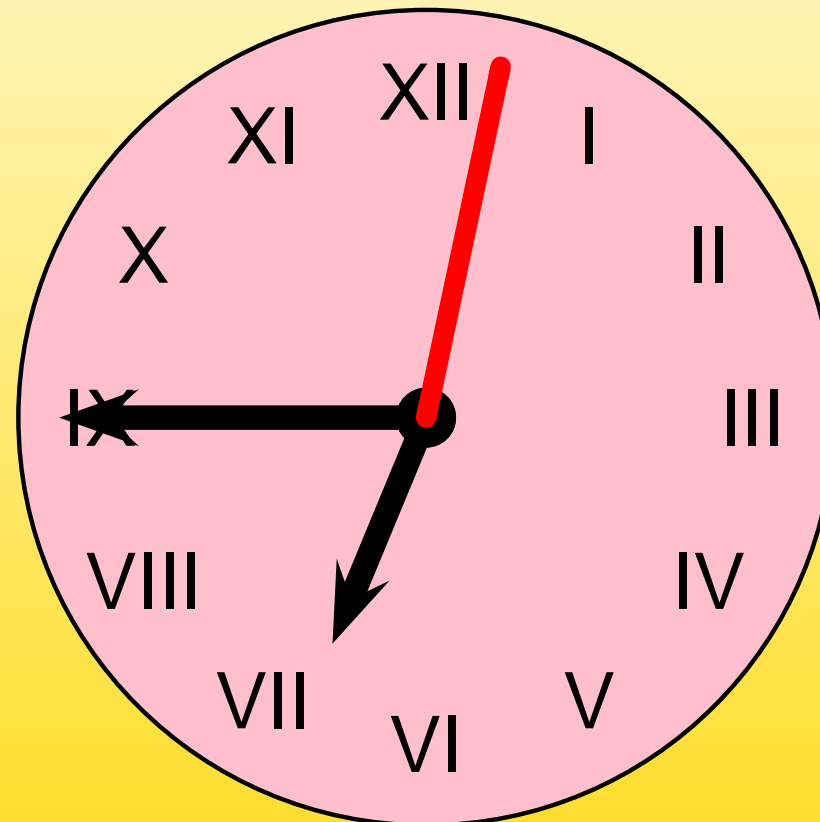


Figure 4: Clock with split-second hand

End of animation



## 6 – Clock with split-second hand

Document compiled at: 18h 45m 03s

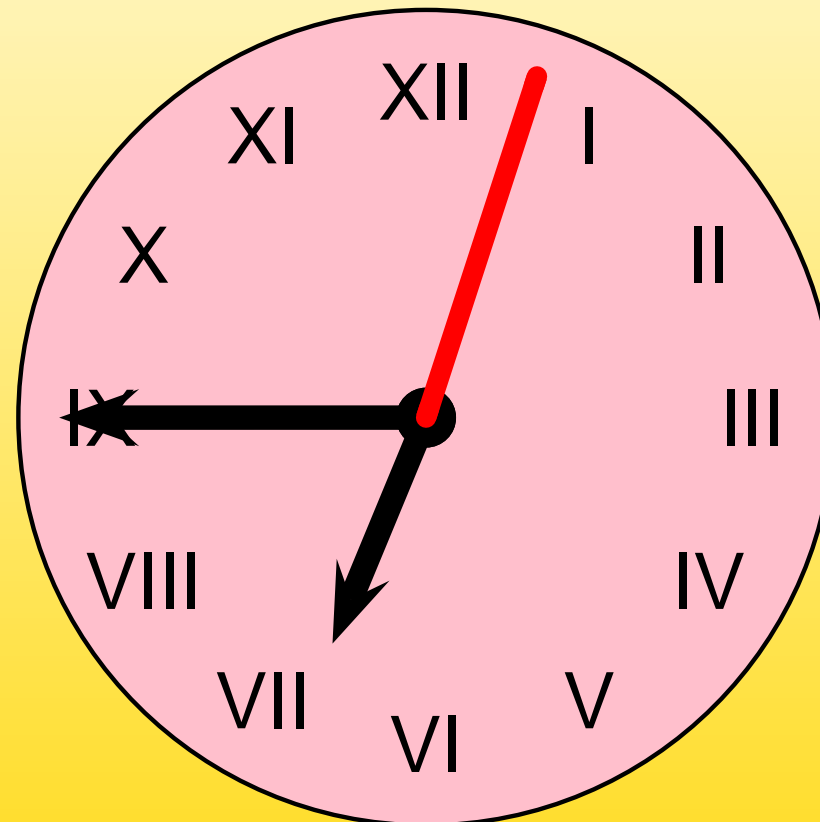


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 04s

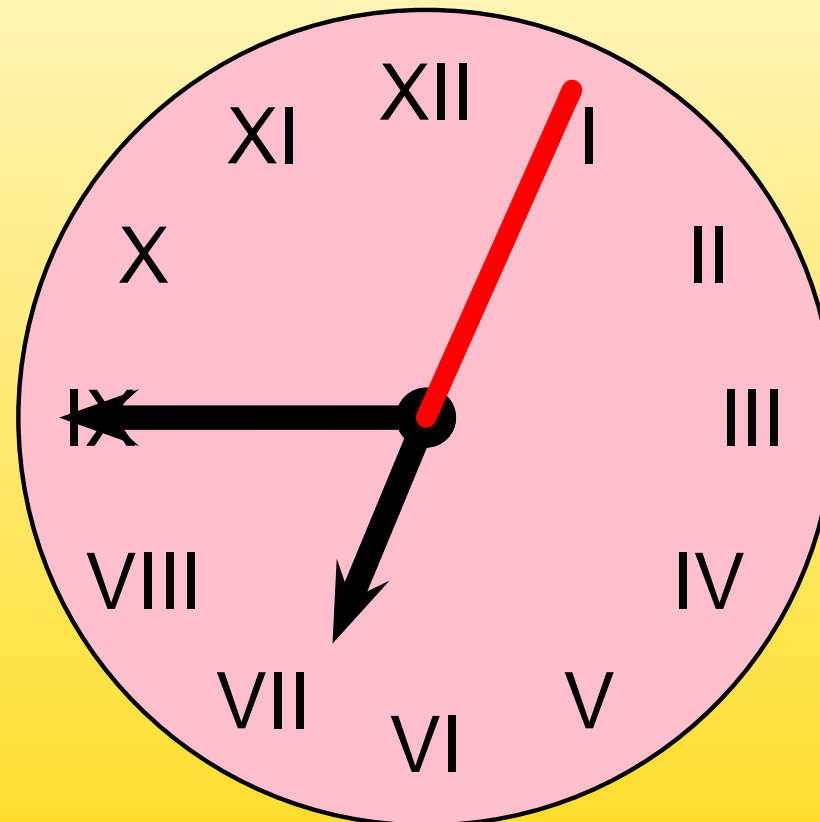


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 05s

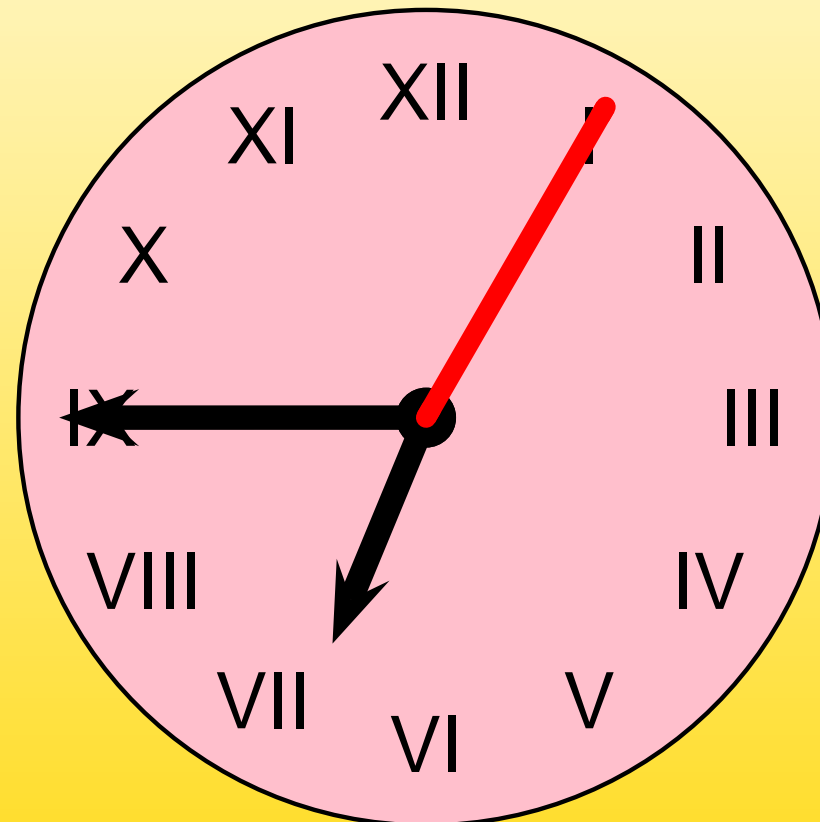


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 06s

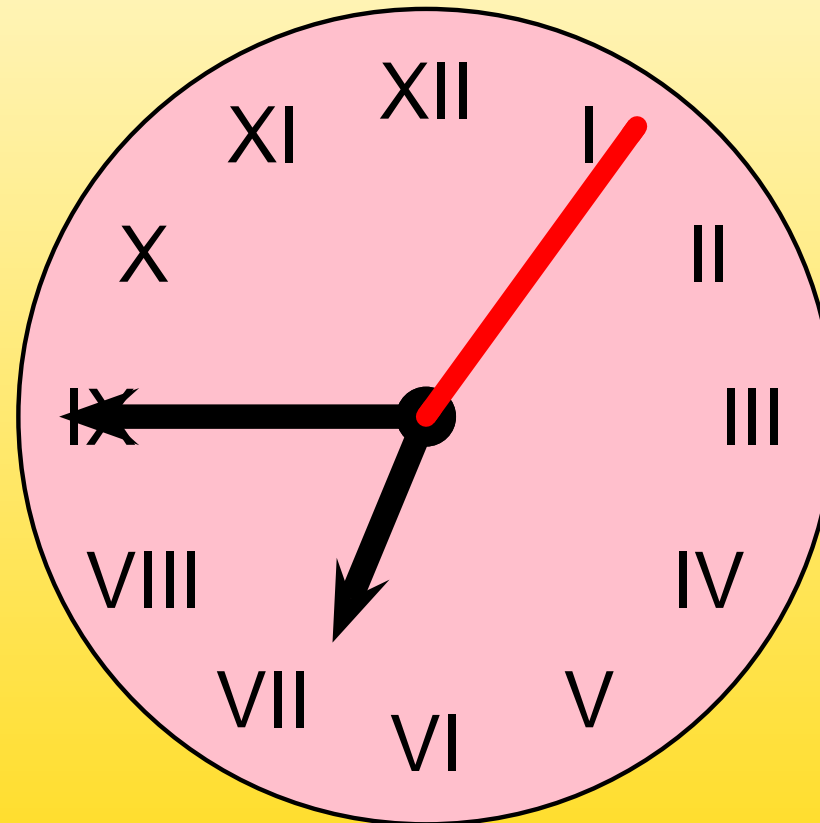


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 07s

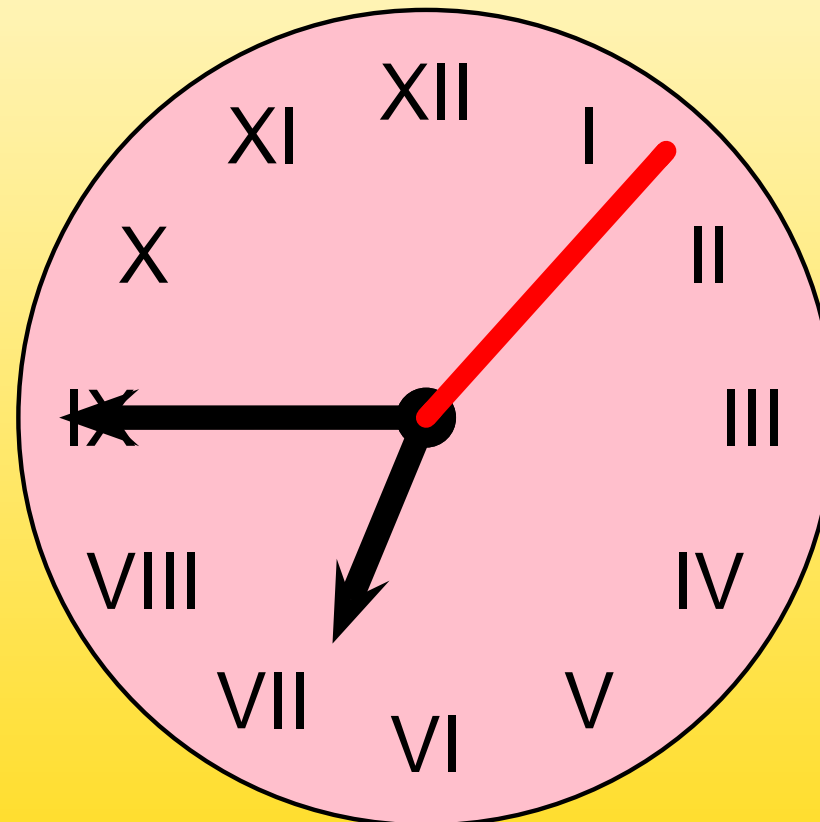


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 08s

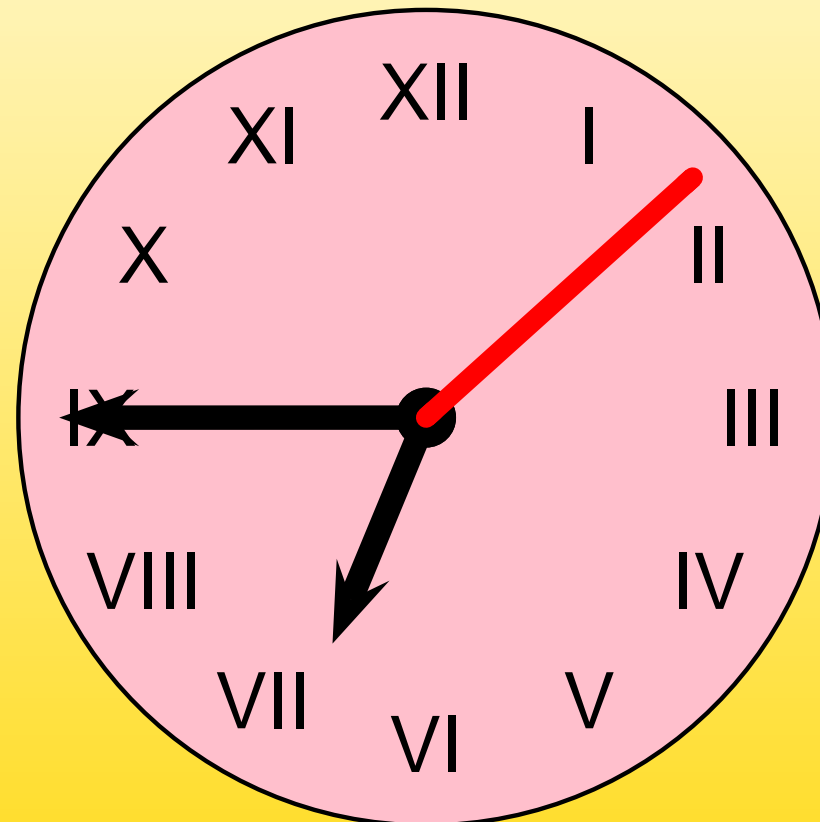


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 09s

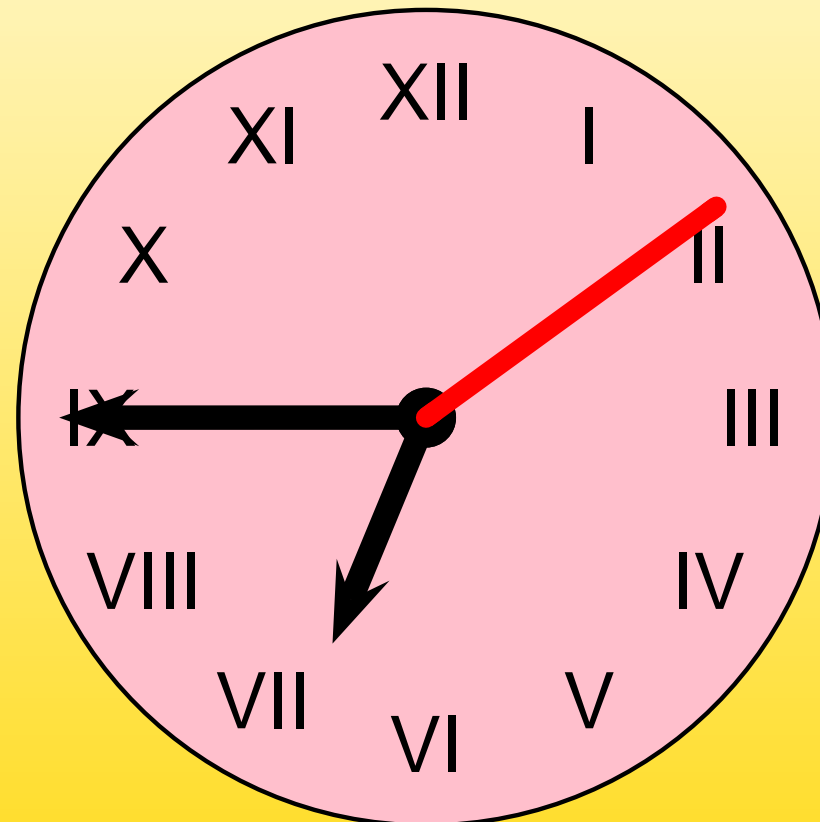


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 10s

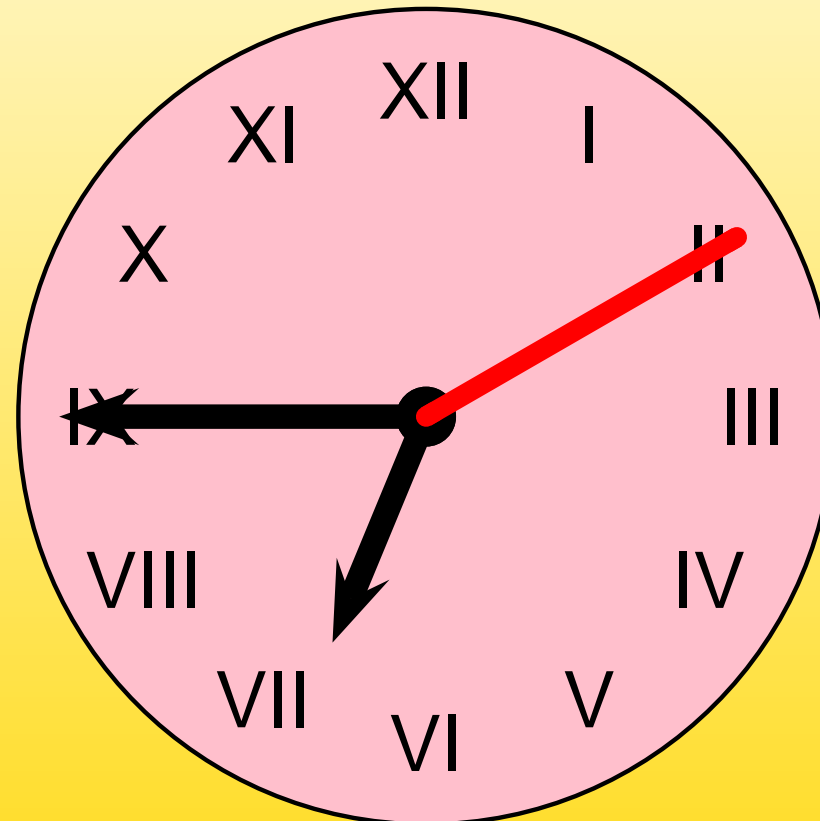


Figure 4: Clock with split-second hand

End of animation



## 6 – Clock with split-second hand

Document compiled at: 18h 45m 11s

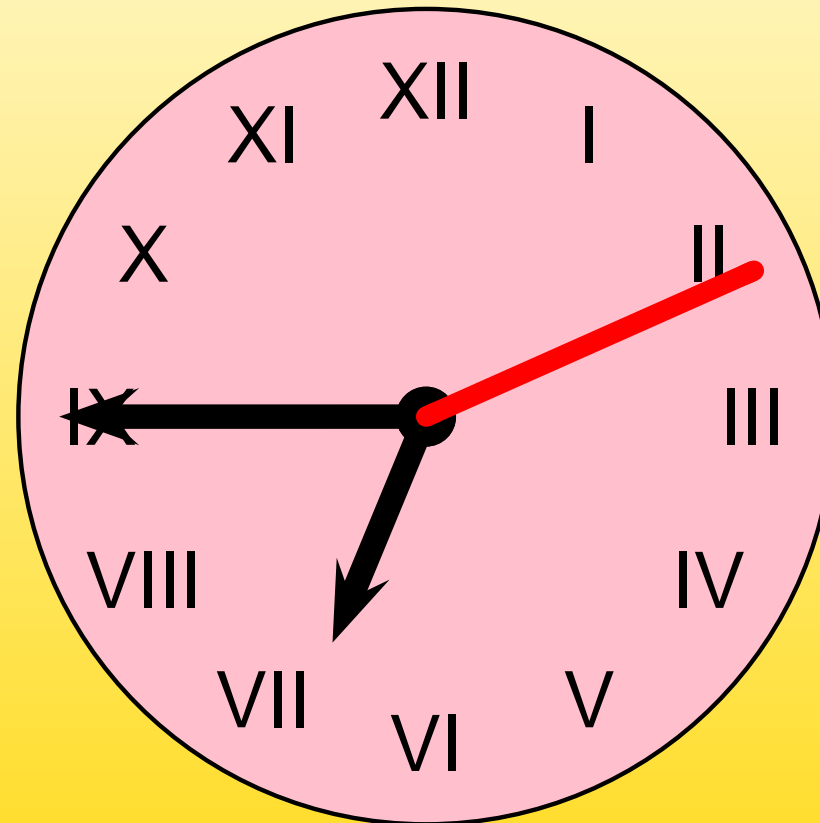


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 12s

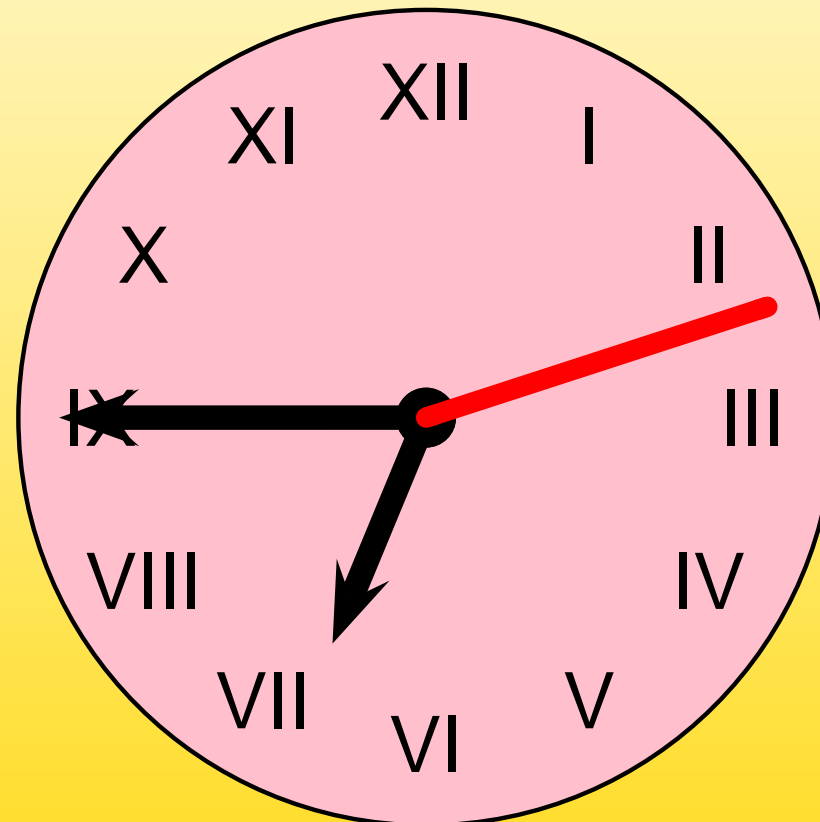


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 13s

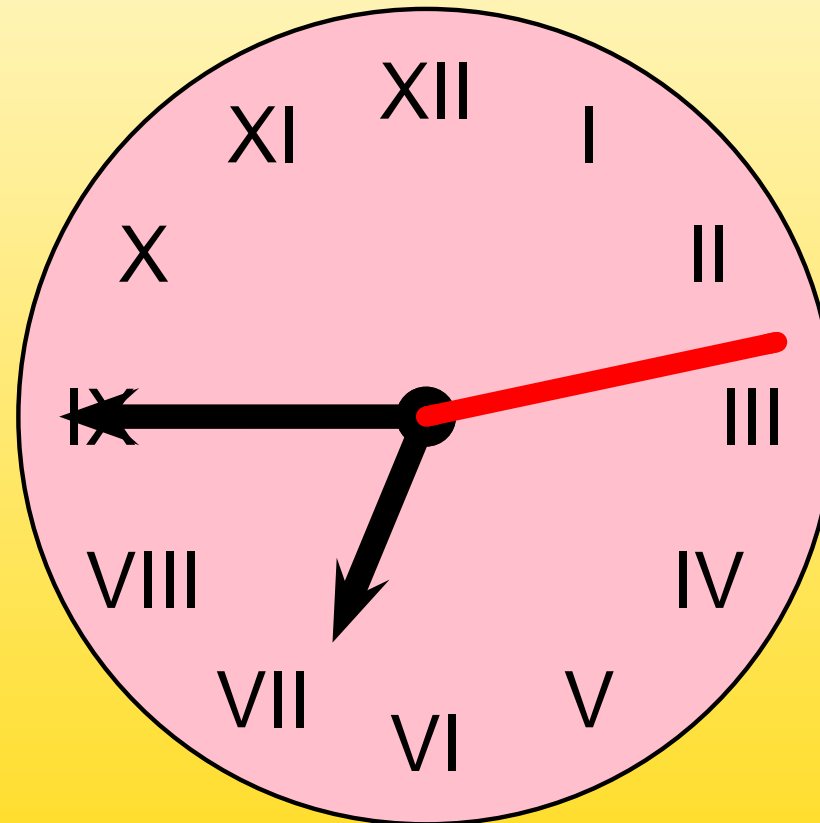


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 14s

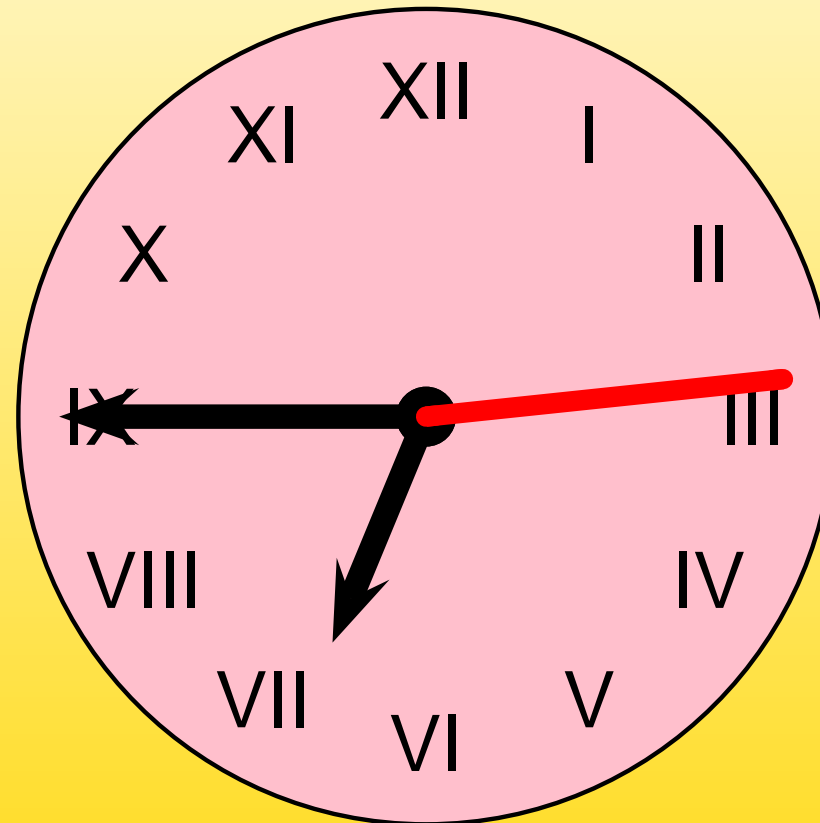


Figure 4: Clock with split-second hand

End of animation

## 6 – Clock with split-second hand

Document compiled at: 18h 45m 15s

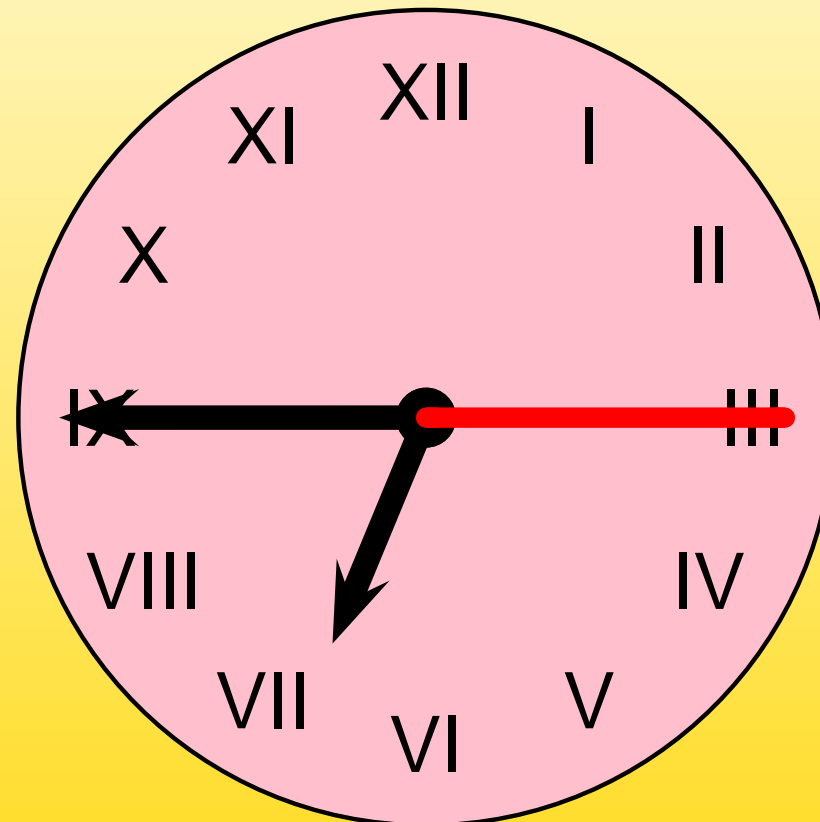


Figure 4: Clock with split-second hand

End of animation

## 7 – Random walk

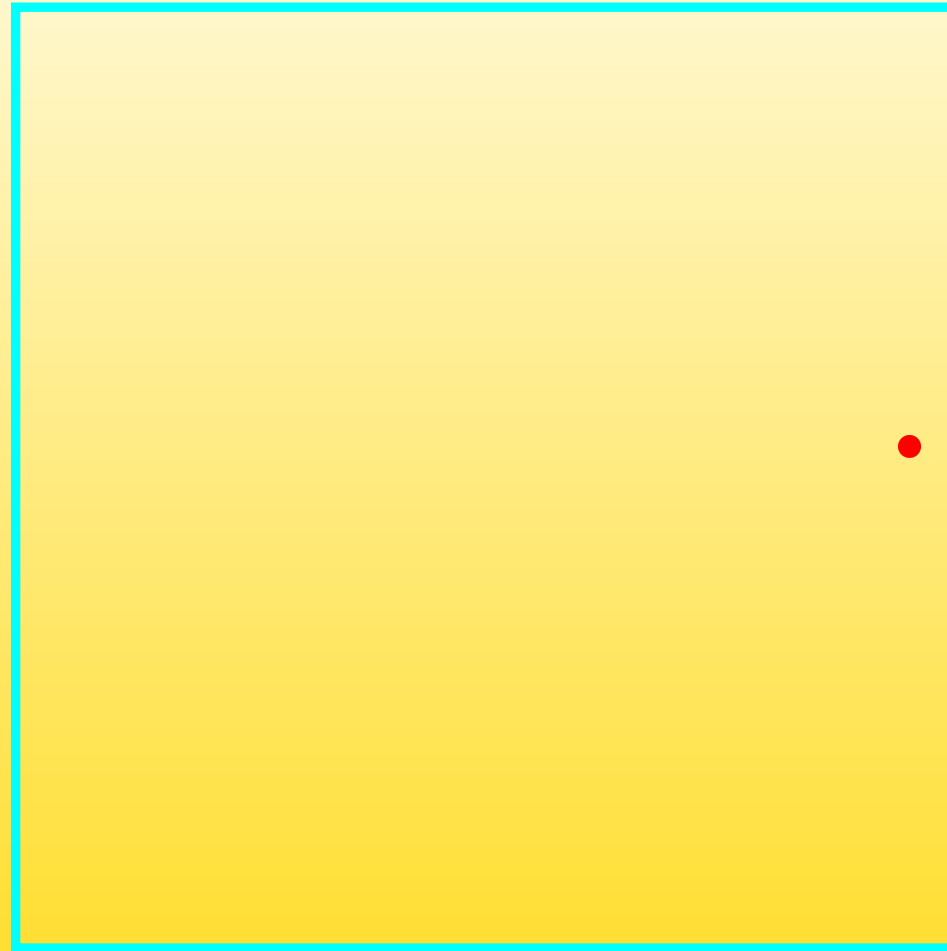


Figure 5: Random walk

End of animation

## 7 – Random walk

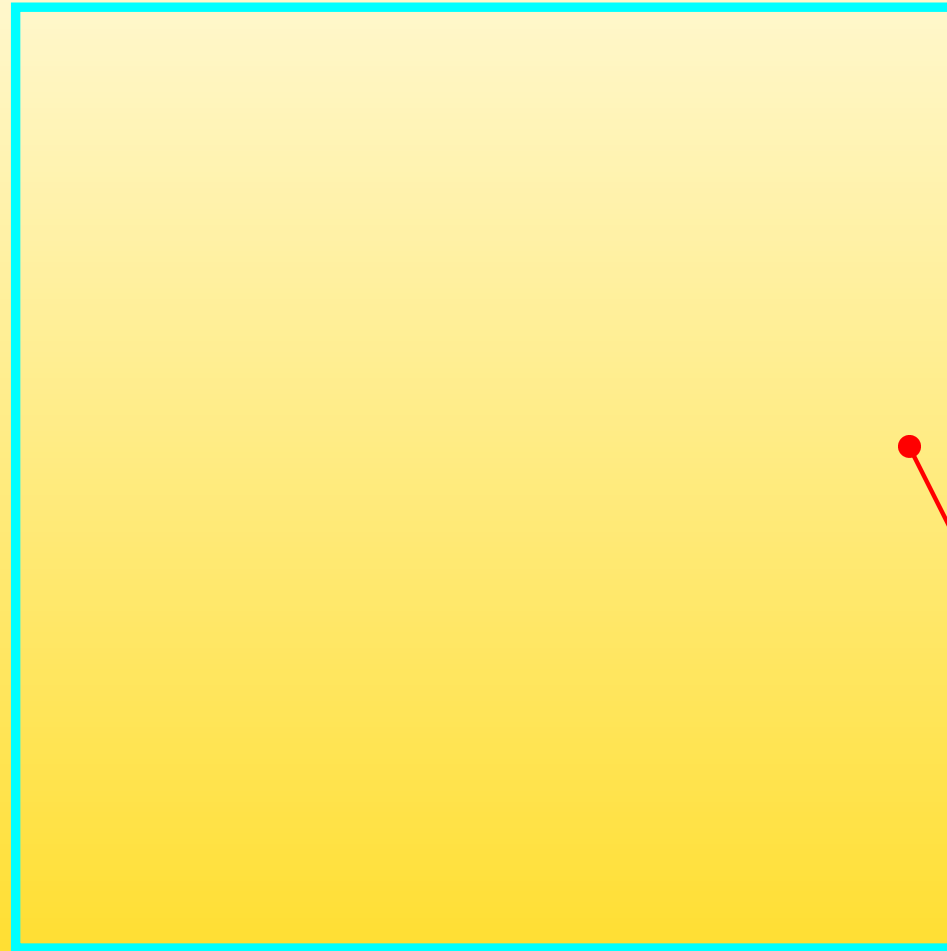


Figure 5: Random walk

End of animation

## 7 – Random walk

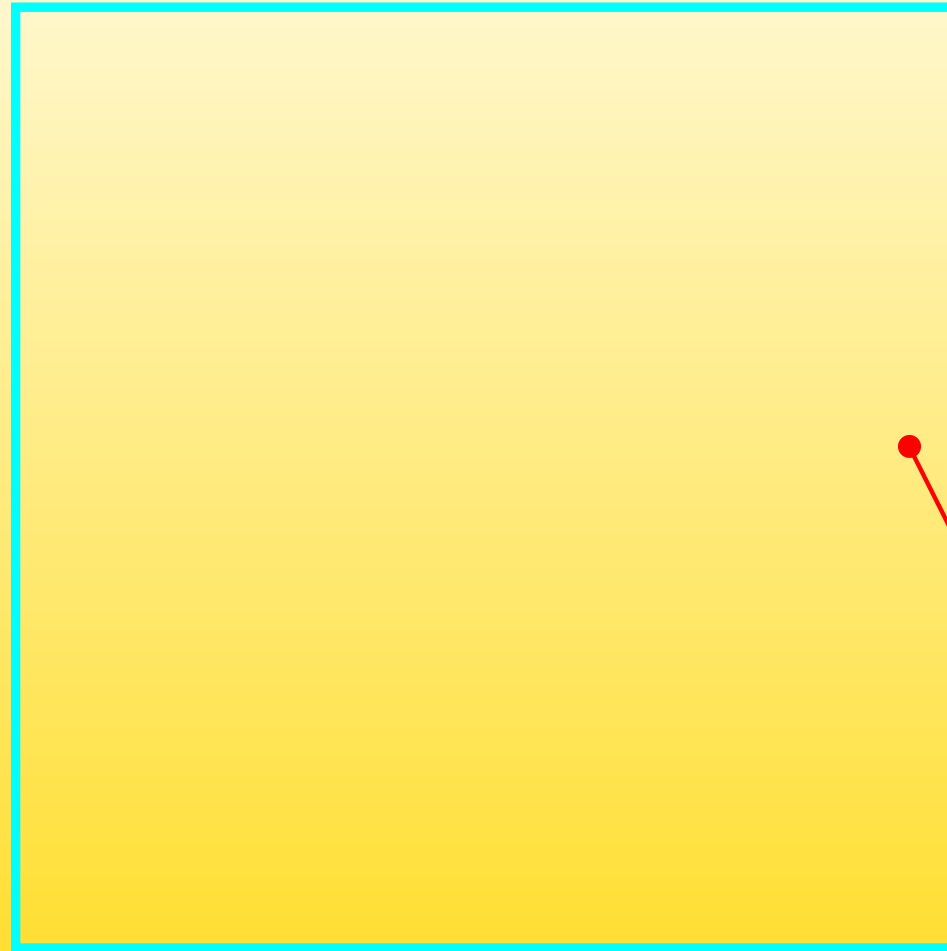


Figure 5: Random walk

End of animation



## 7 – Random walk

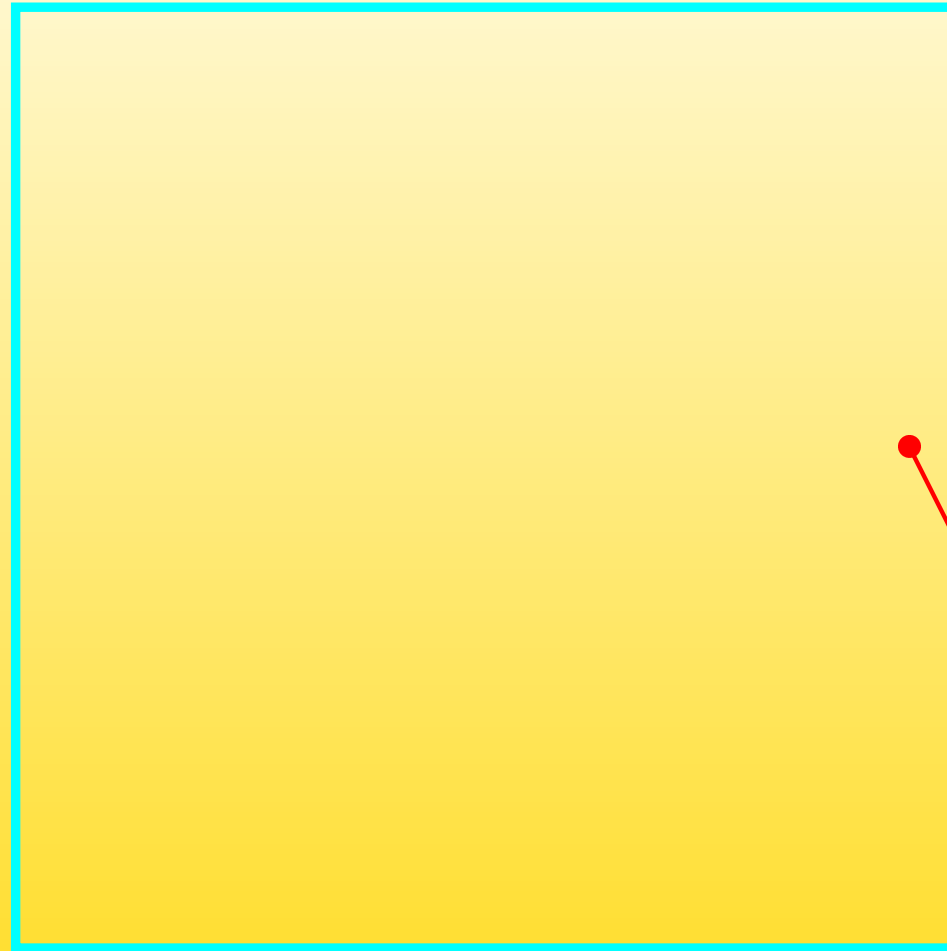


Figure 5: Random walk

End of animation

## 7 – Random walk

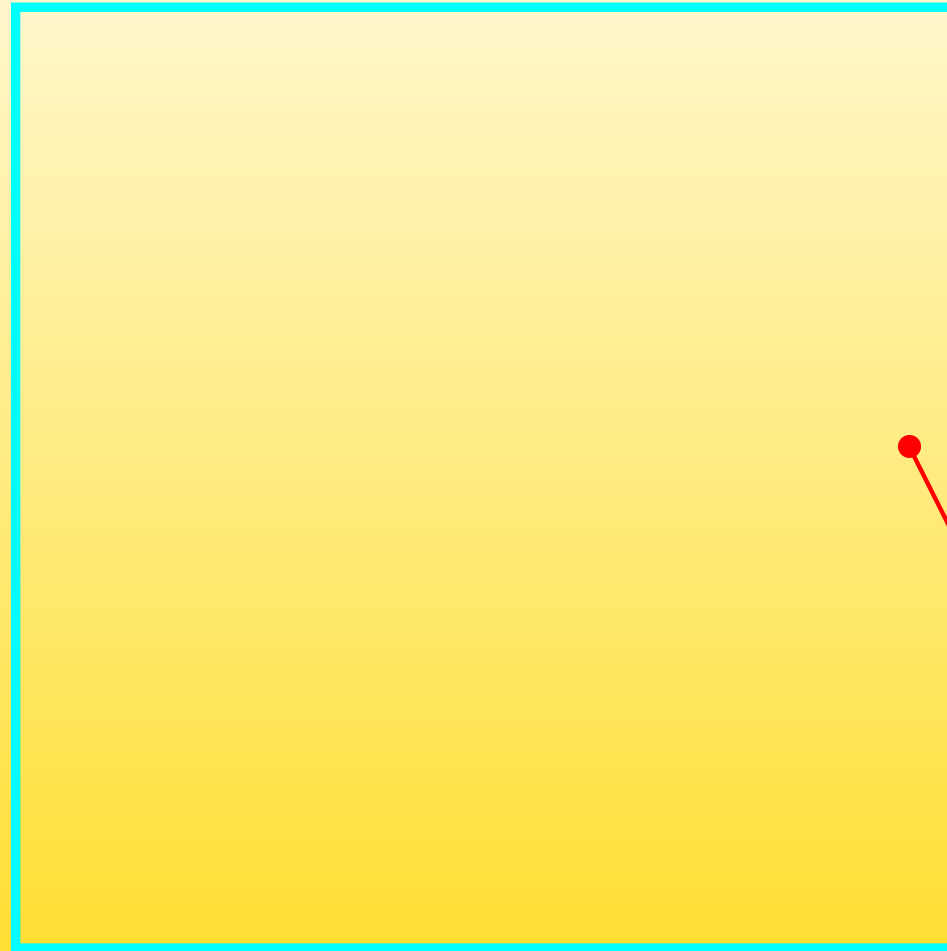


Figure 5: Random walk

End of animation

## 7 – Random walk

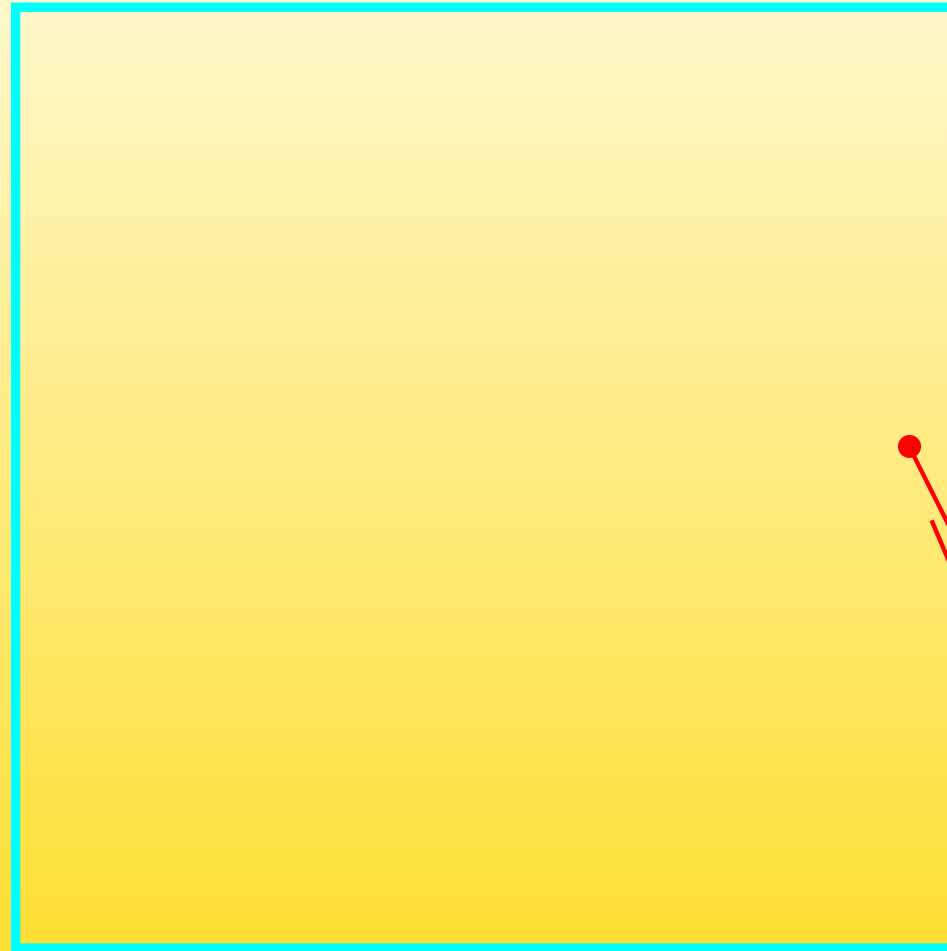


Figure 5: Random walk

End of animation

## 7 – Random walk

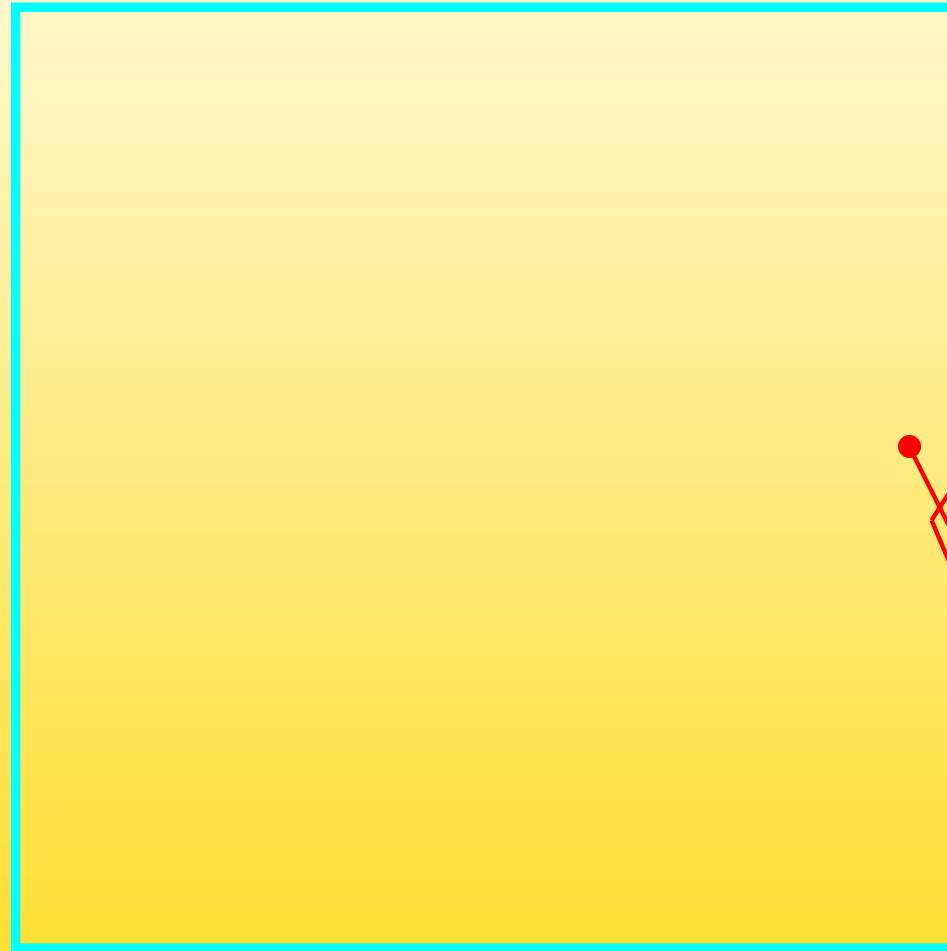


Figure 5: Random walk

End of animation

## 7 – Random walk

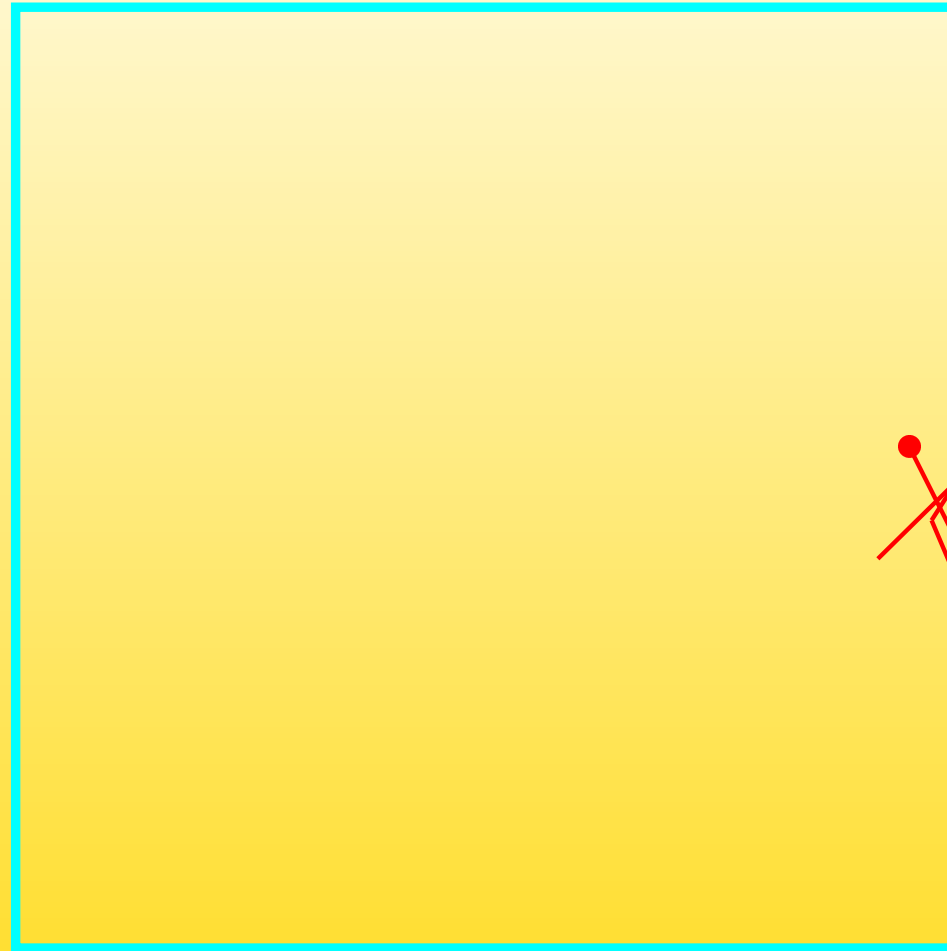


Figure 5: Random walk

End of animation

## 7 – Random walk

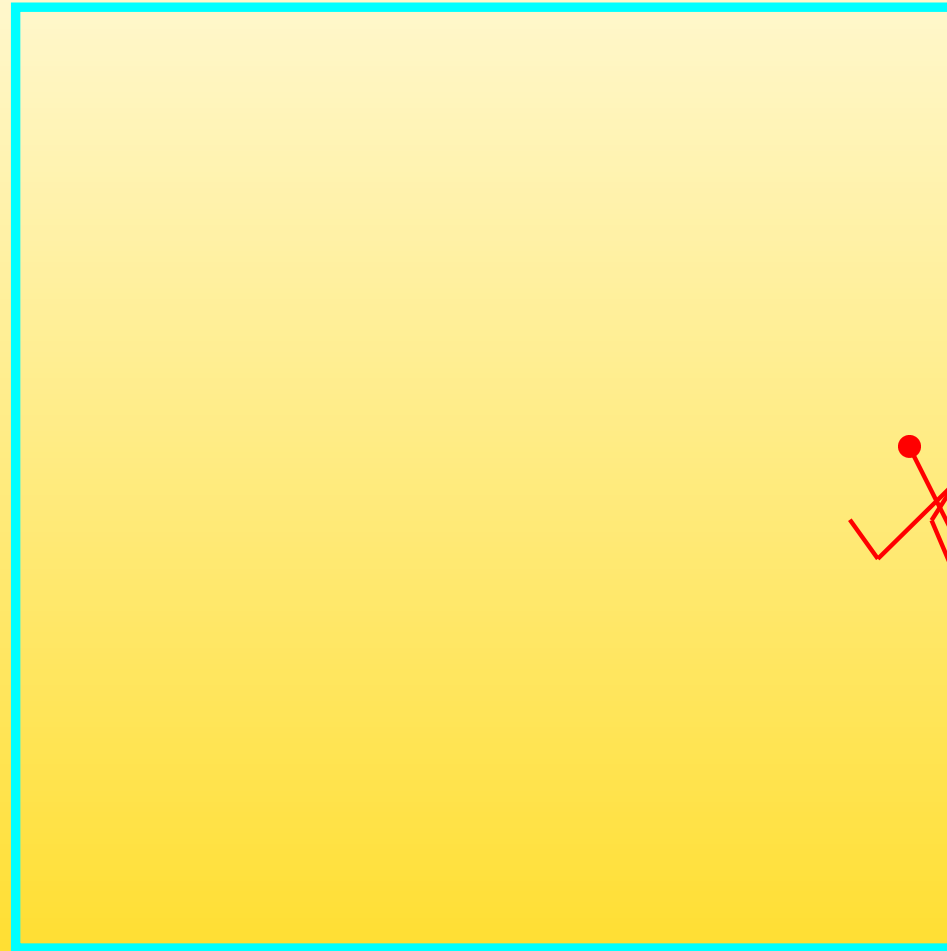


Figure 5: Random walk

End of animation

## 7 – Random walk

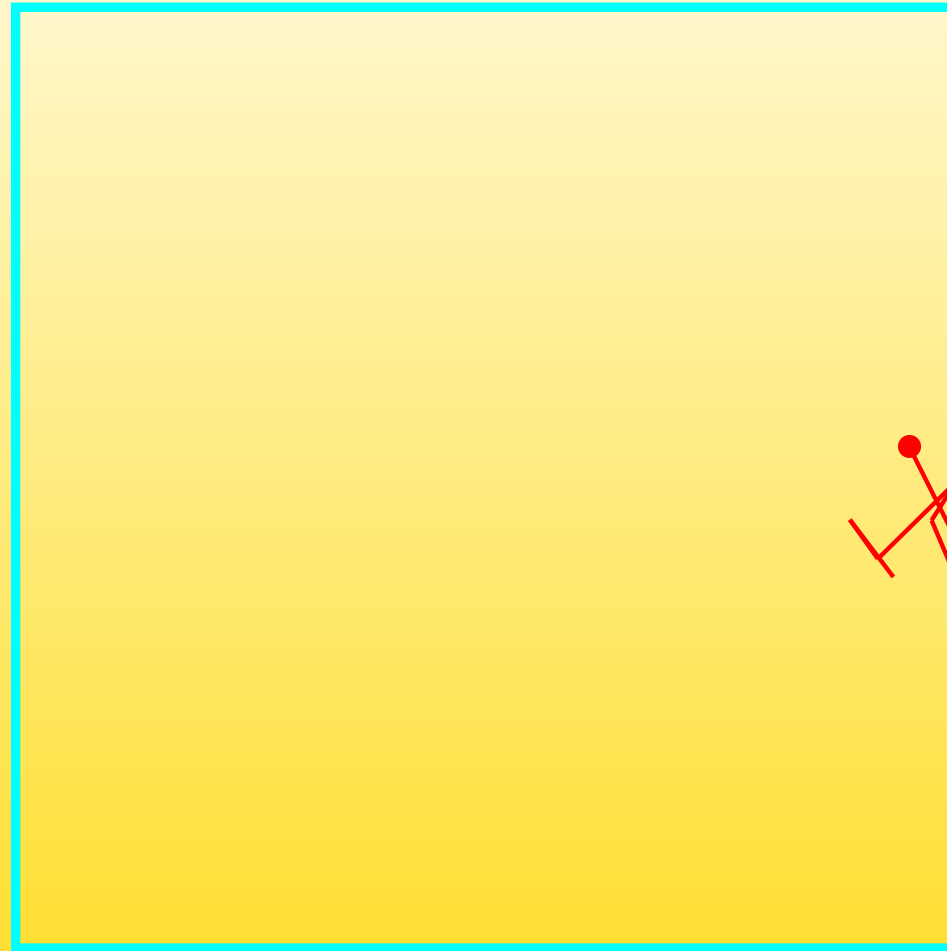


Figure 5: Random walk

End of animation

## 7 – Random walk

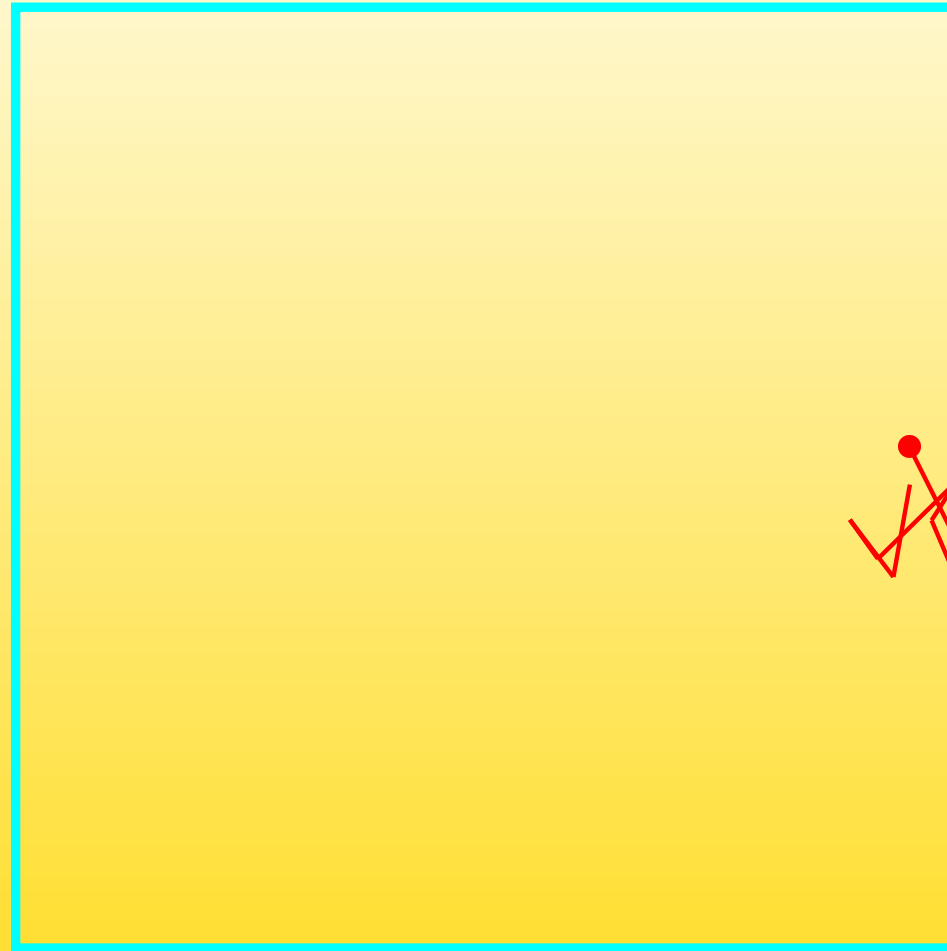


Figure 5: Random walk

End of animation



## 7 – Random walk

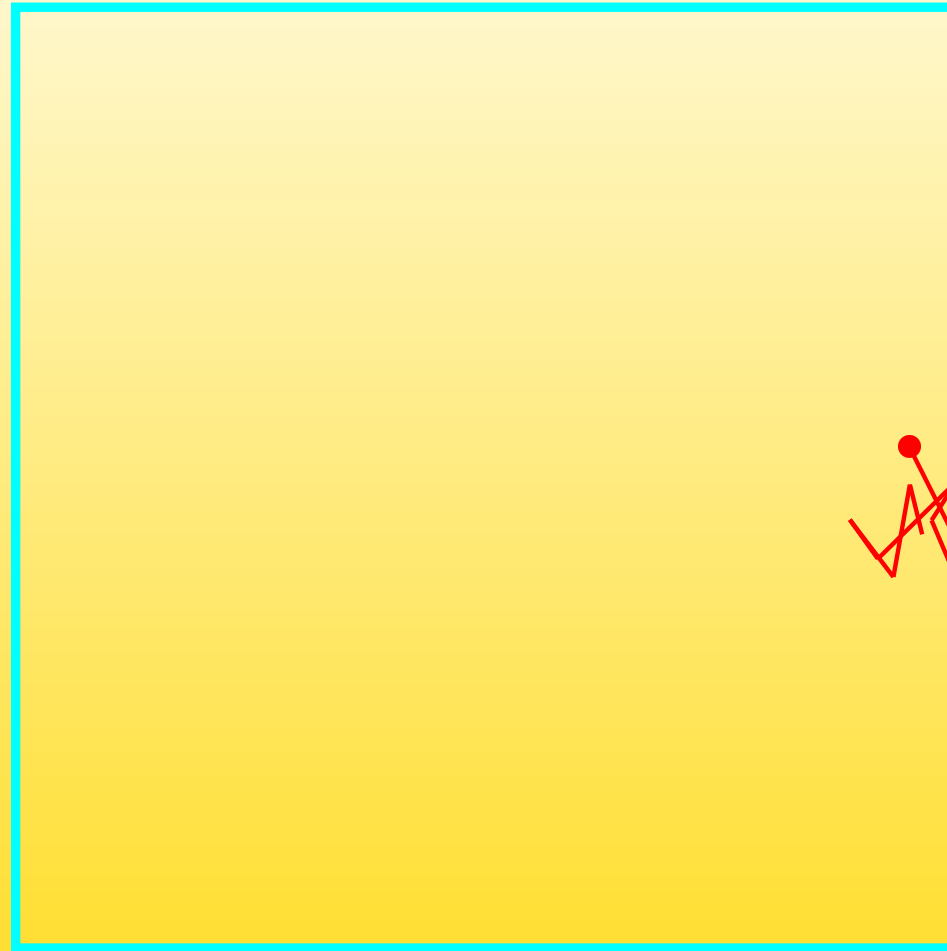


Figure 5: Random walk

End of animation

## 7 – Random walk

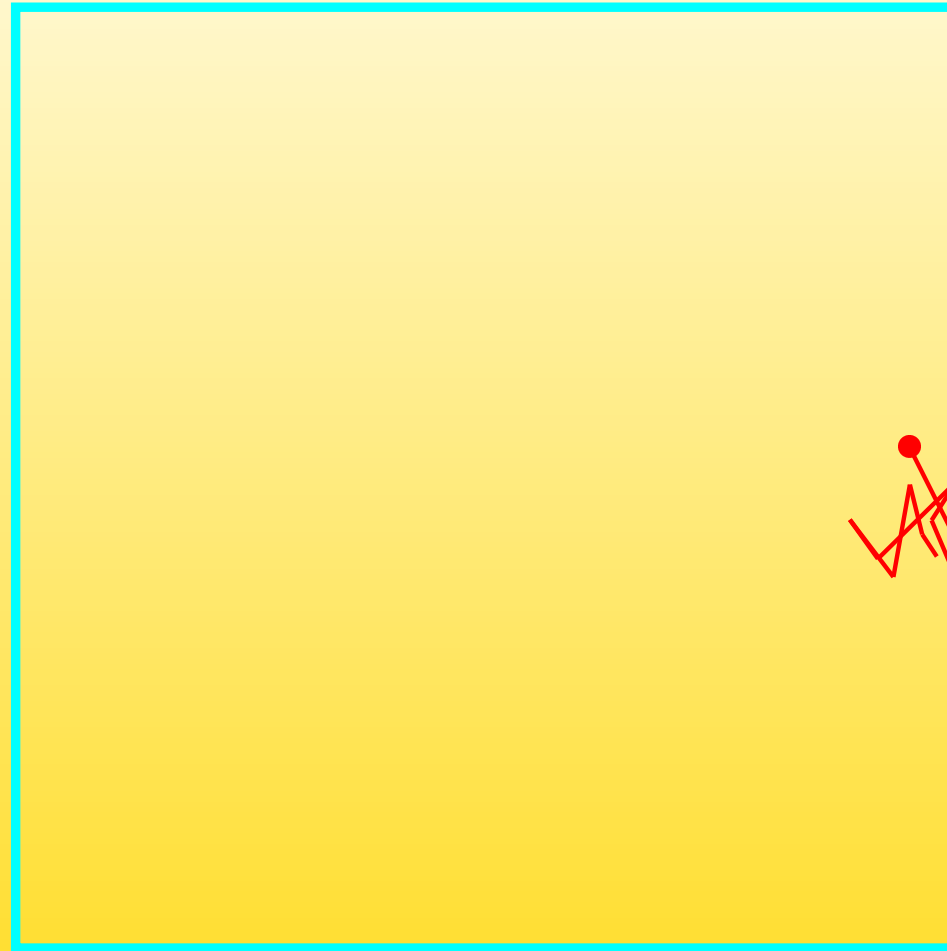


Figure 5: Random walk

End of animation

## 7 – Random walk

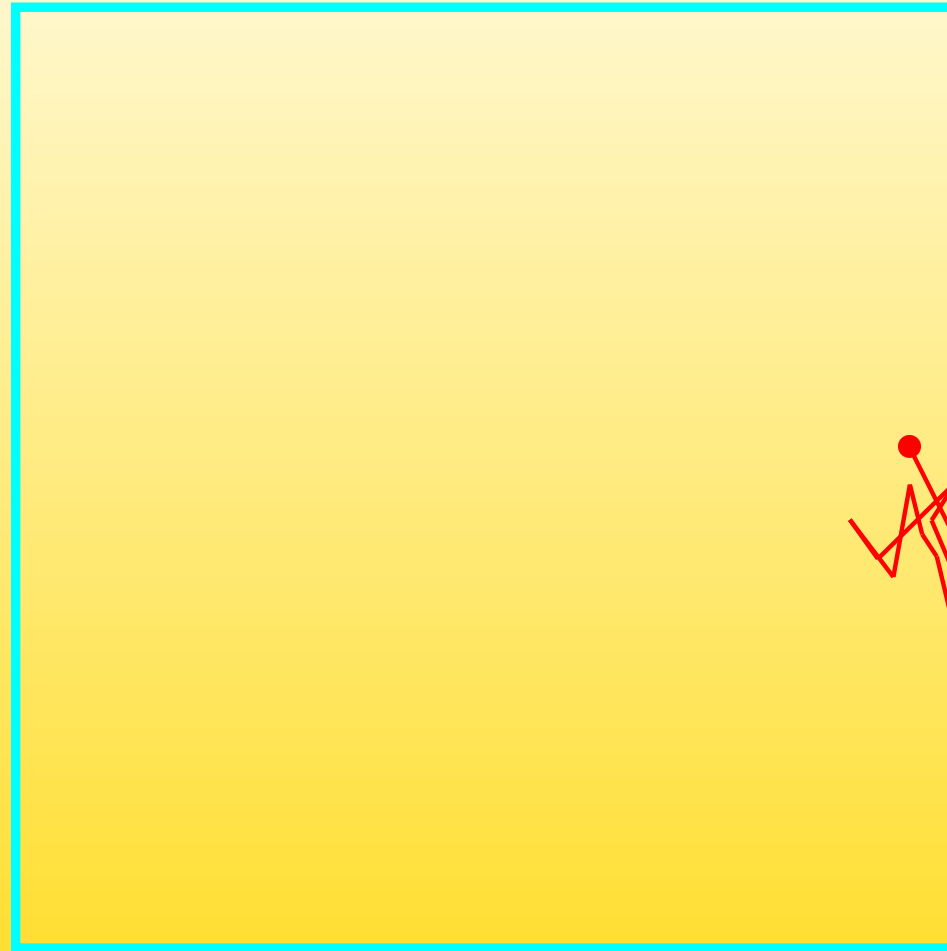


Figure 5: Random walk

End of animation

## 7 – Random walk

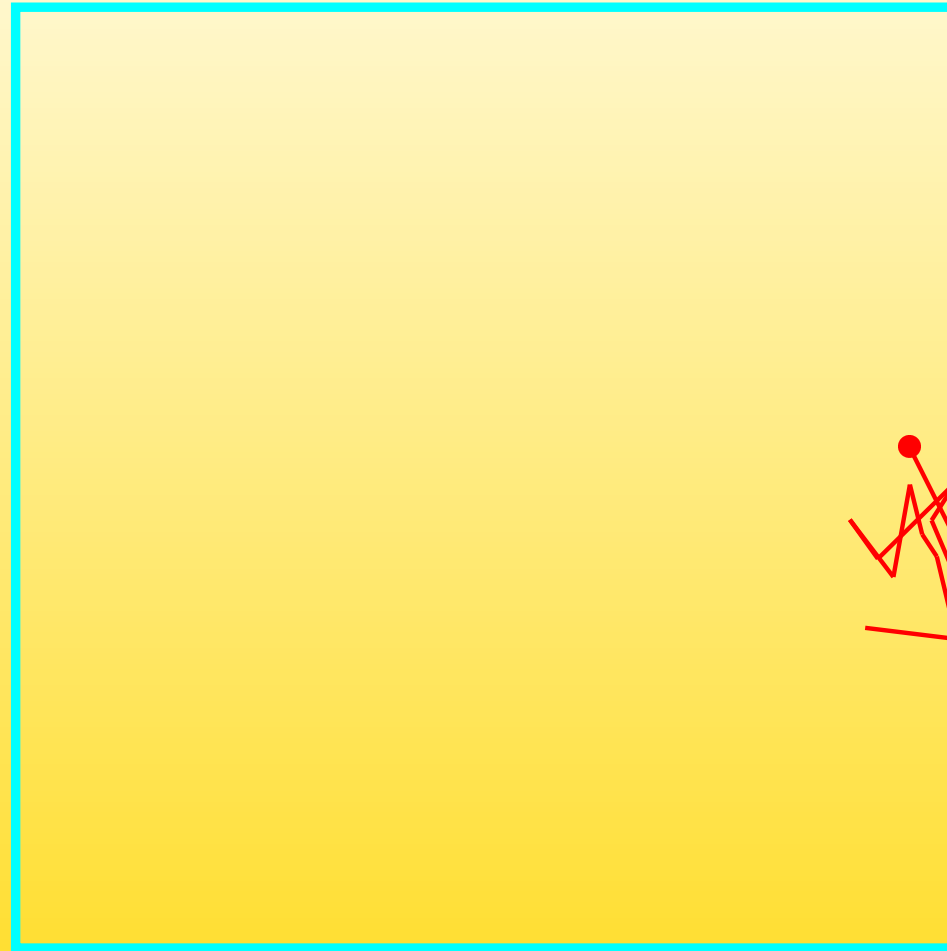


Figure 5: Random walk

End of animation

## 7 – Random walk

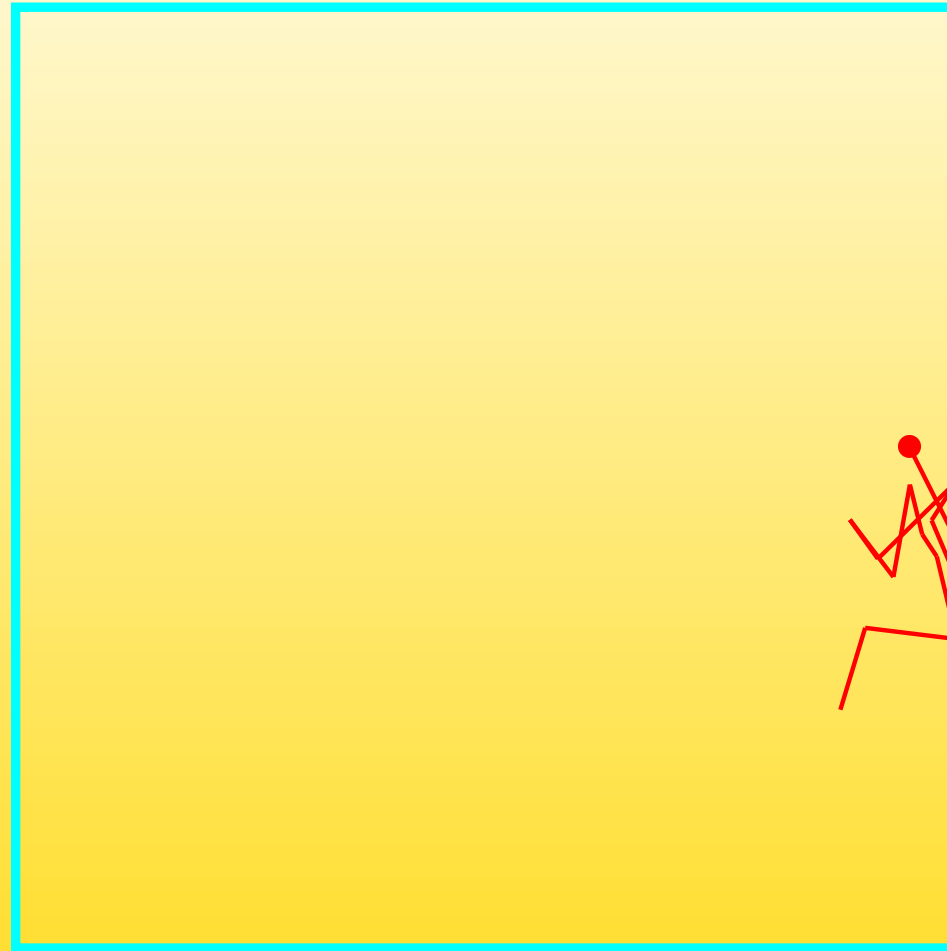


Figure 5: Random walk

End of animation

## 7 – Random walk

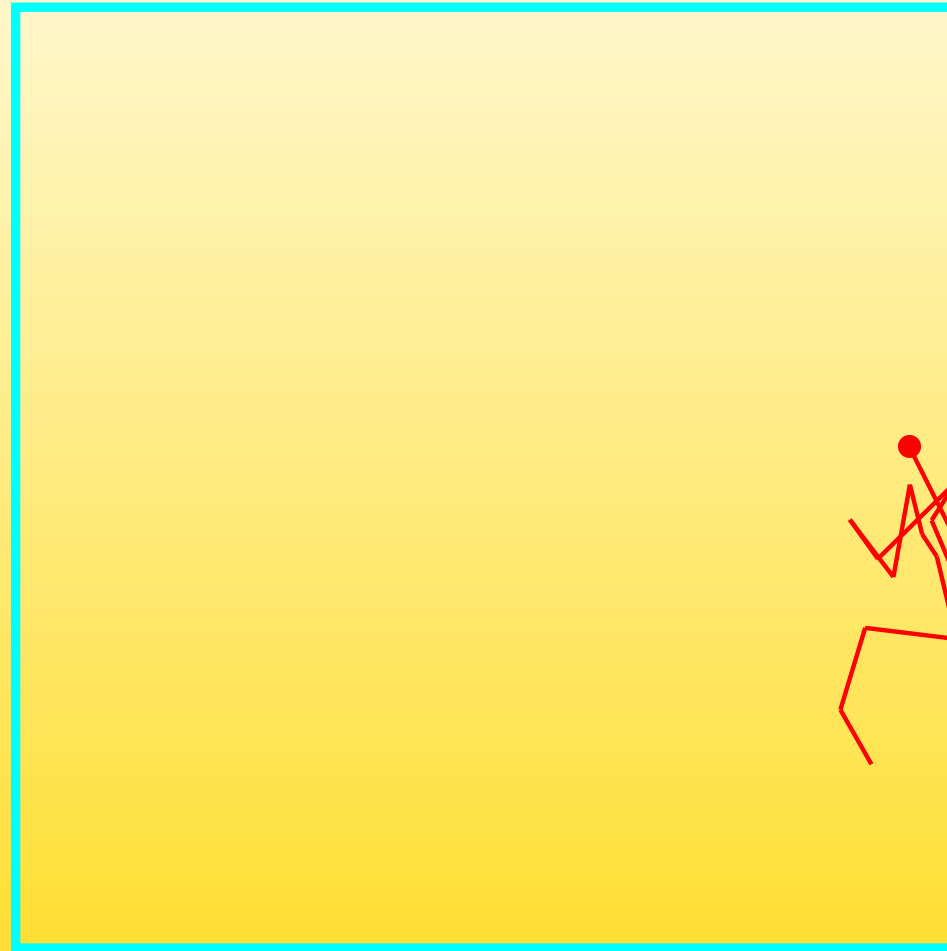


Figure 5: Random walk

End of animation

## 7 – Random walk

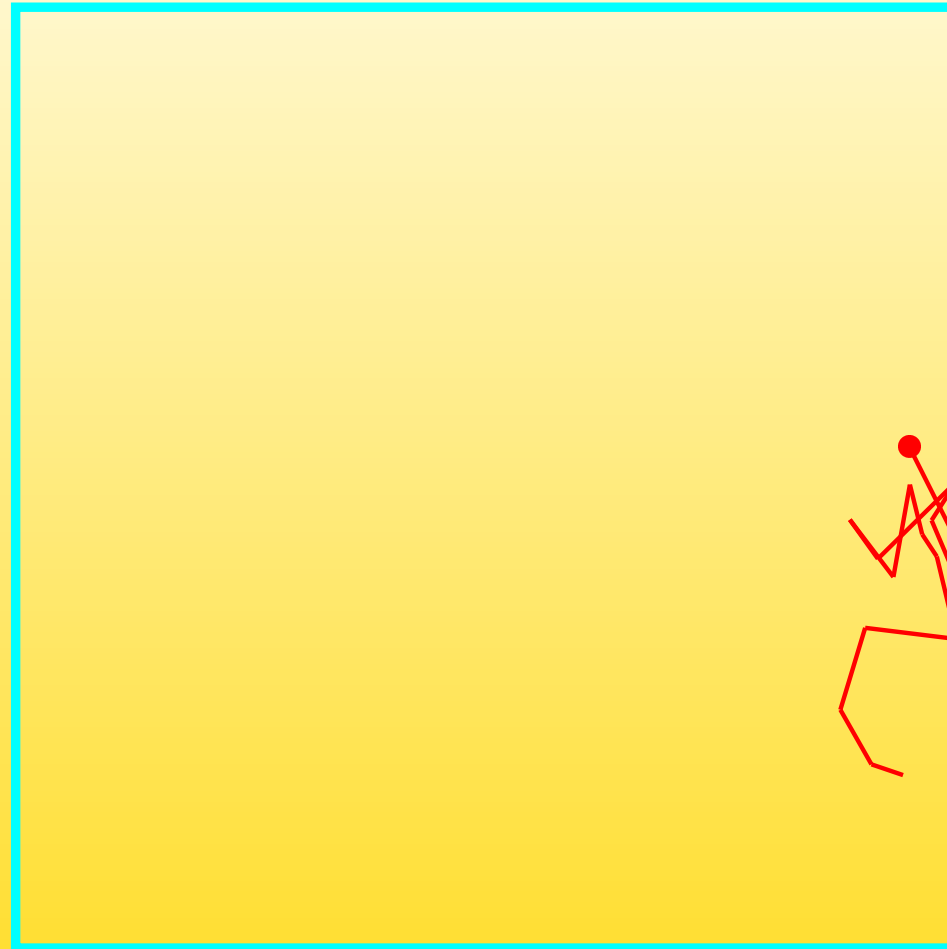


Figure 5: Random walk

End of animation

## 7 – Random walk

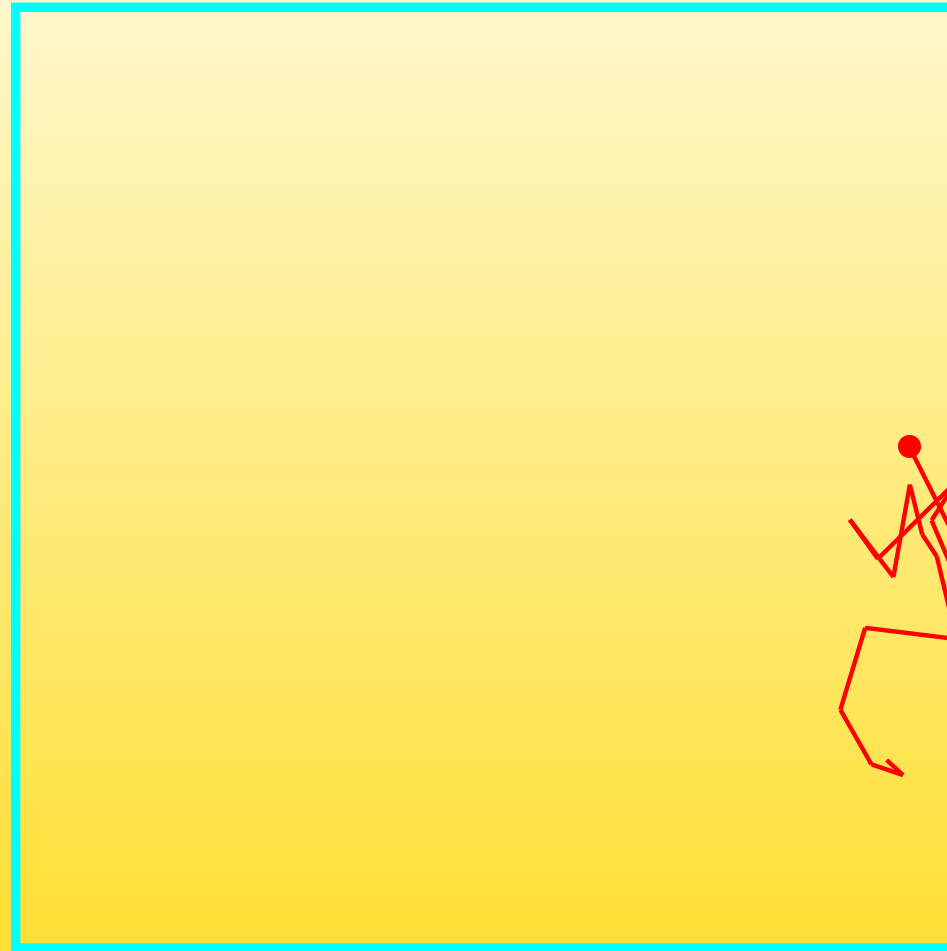


Figure 5: Random walk

End of animation



## 7 – Random walk

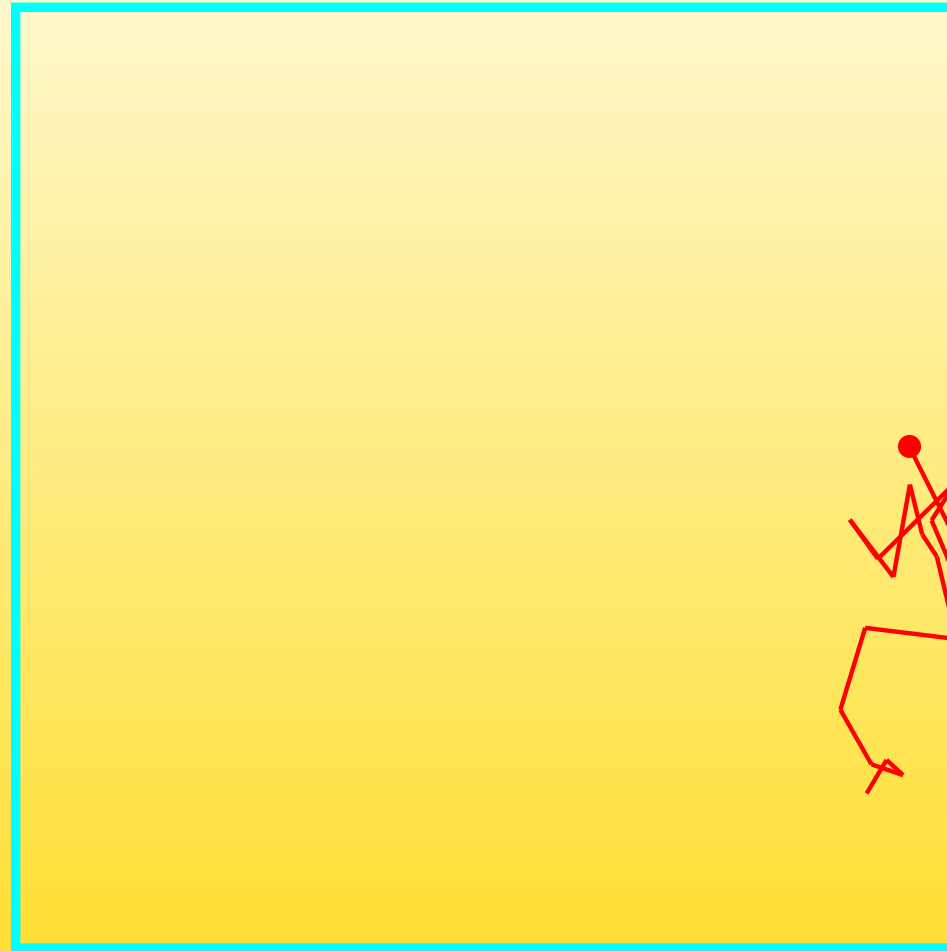


Figure 5: Random walk

End of animation

## 7 – Random walk

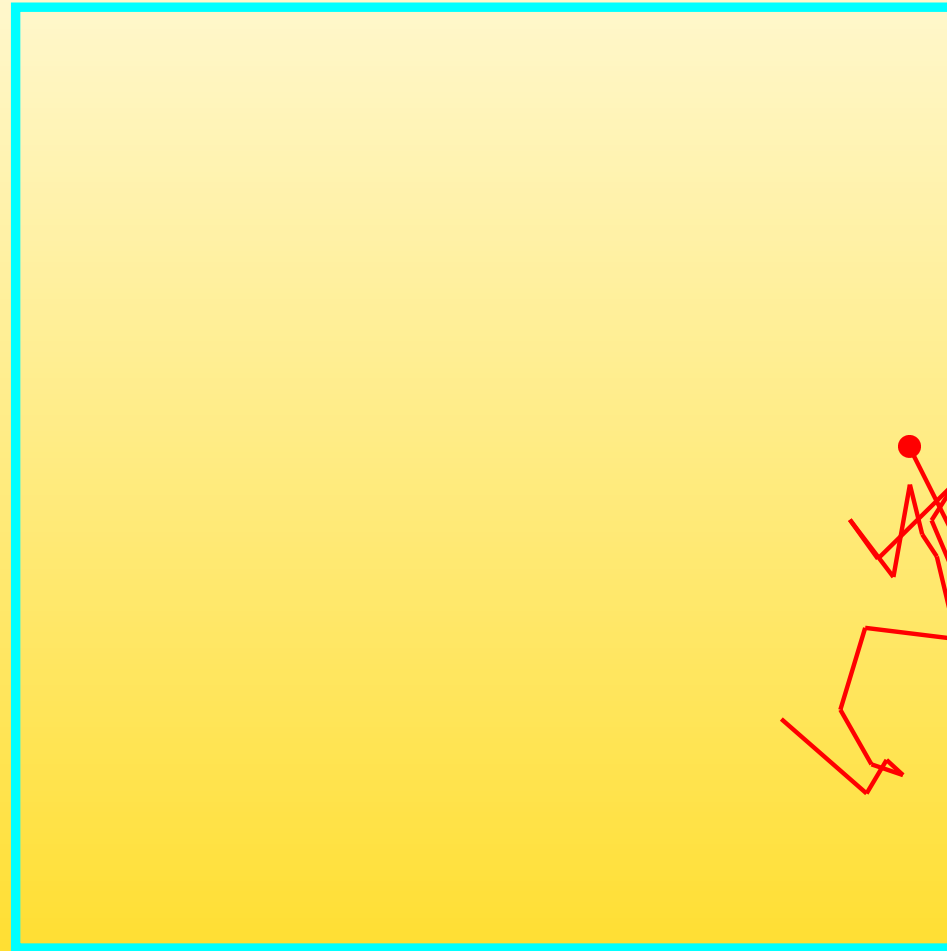


Figure 5: Random walk

End of animation

## 7 – Random walk

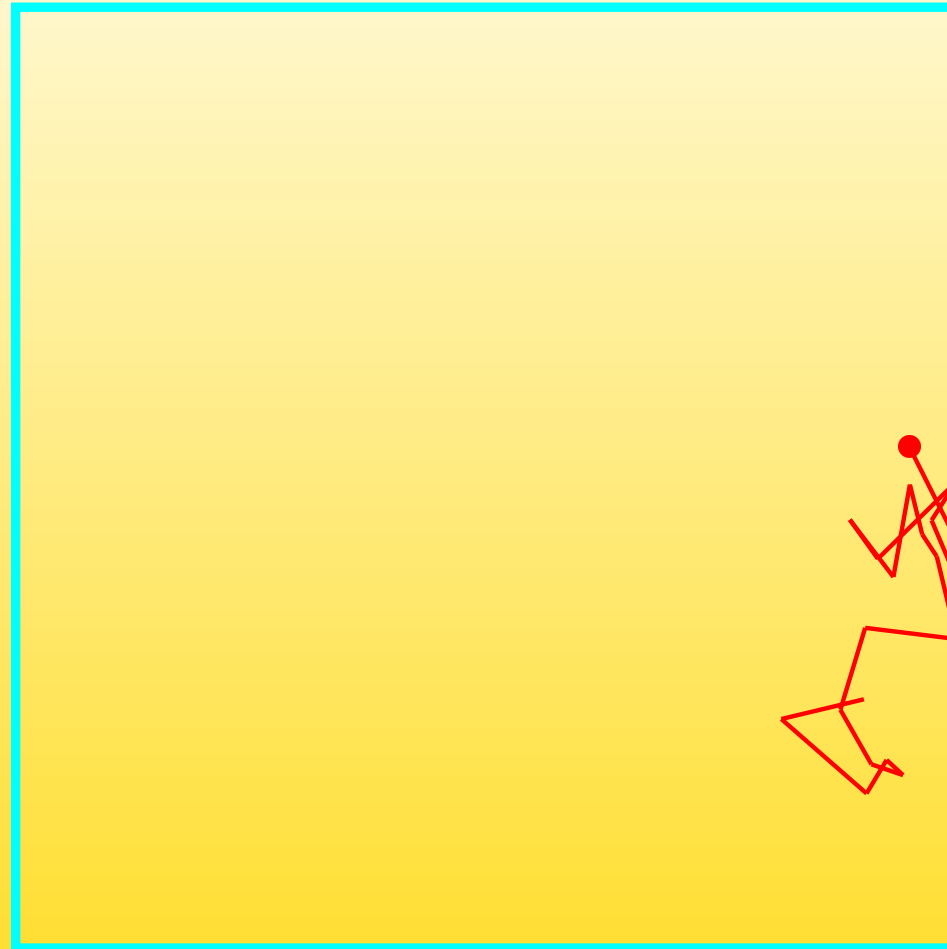


Figure 5: Random walk

End of animation

## 7 – Random walk

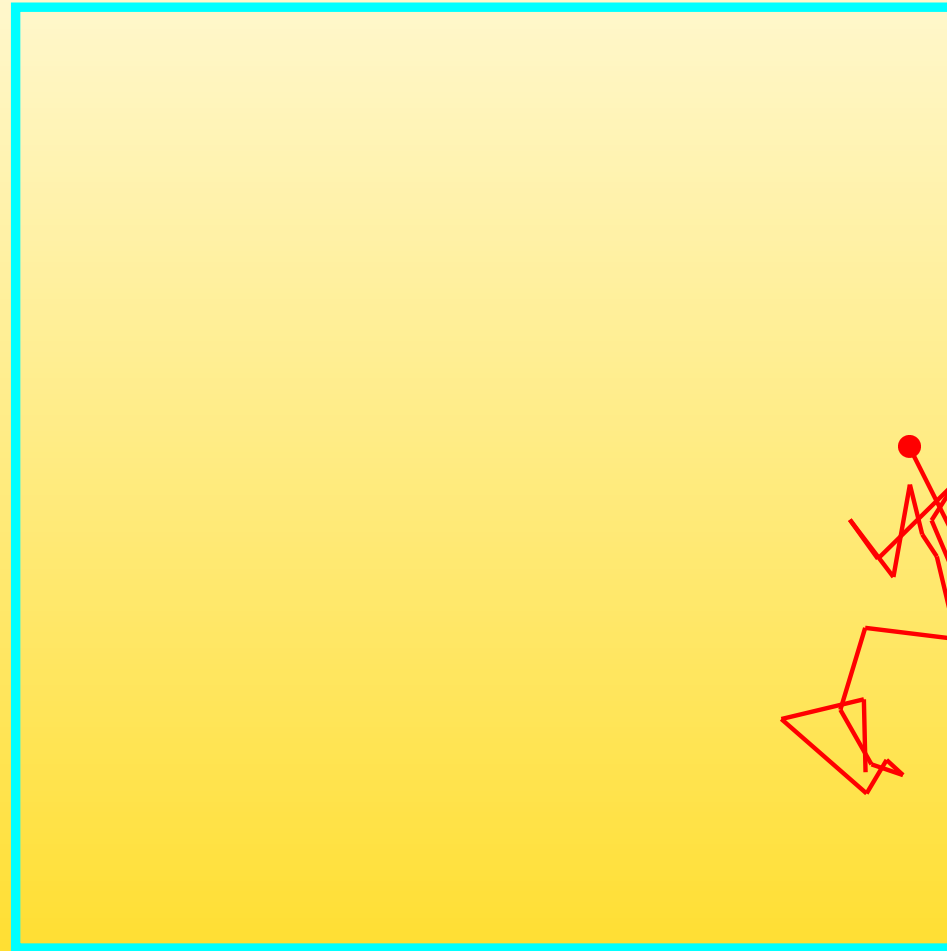


Figure 5: Random walk

End of animation

## 7 – Random walk

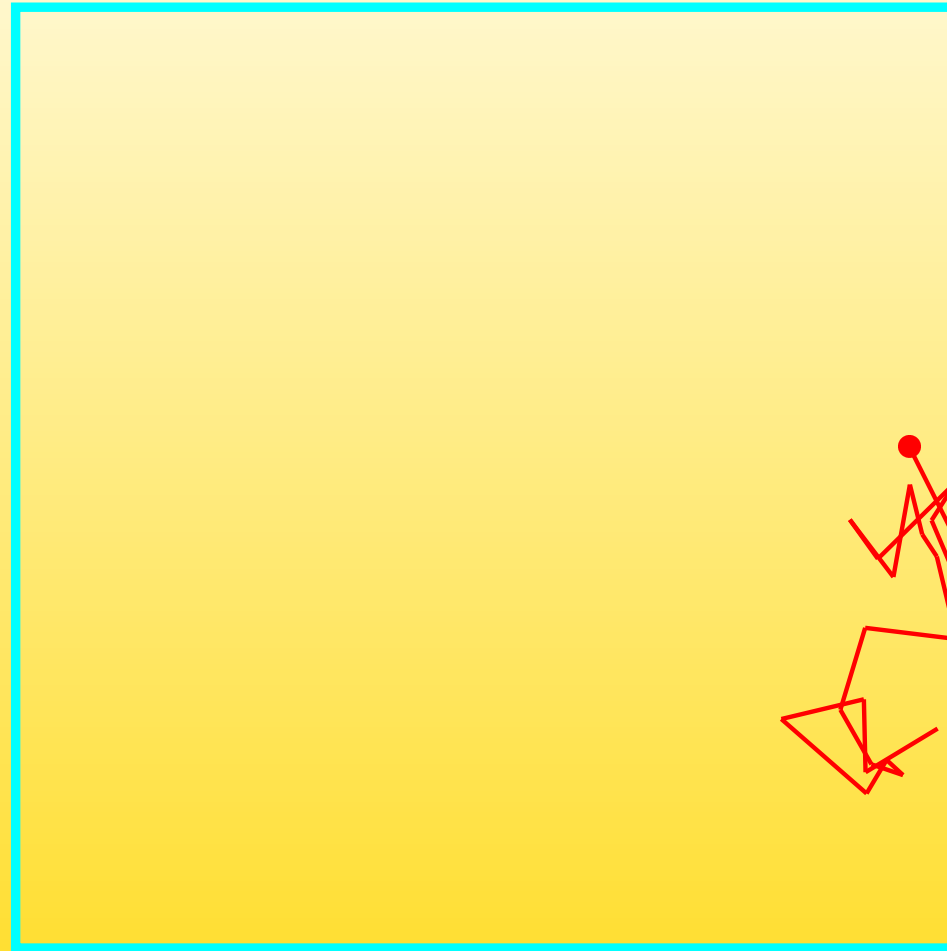


Figure 5: Random walk

End of animation

## 7 – Random walk

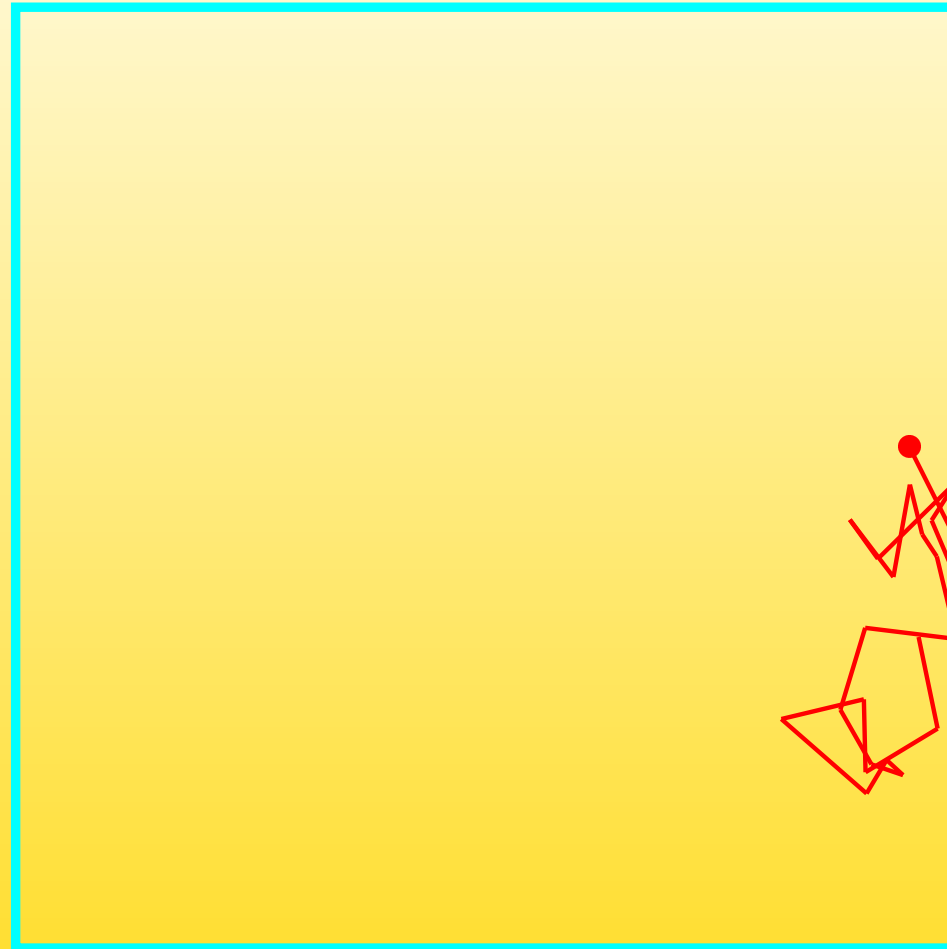


Figure 5: Random walk

End of animation

## 7 – Random walk

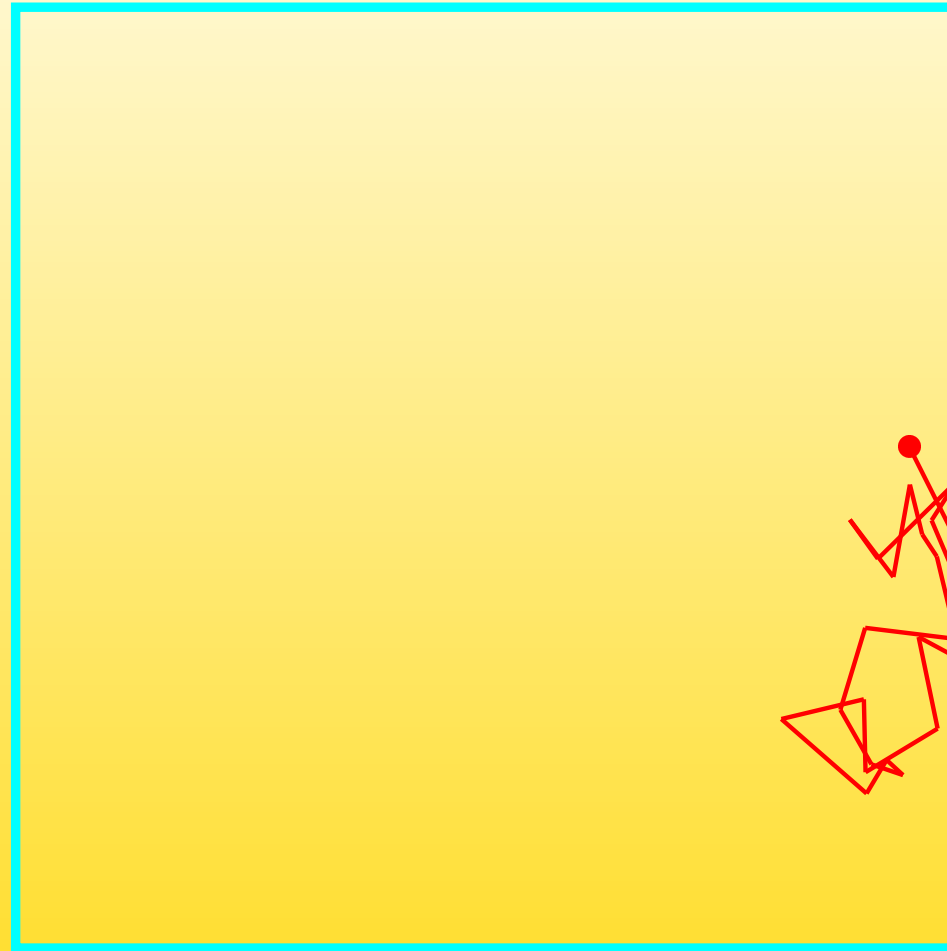


Figure 5: Random walk

End of animation

## 7 – Random walk

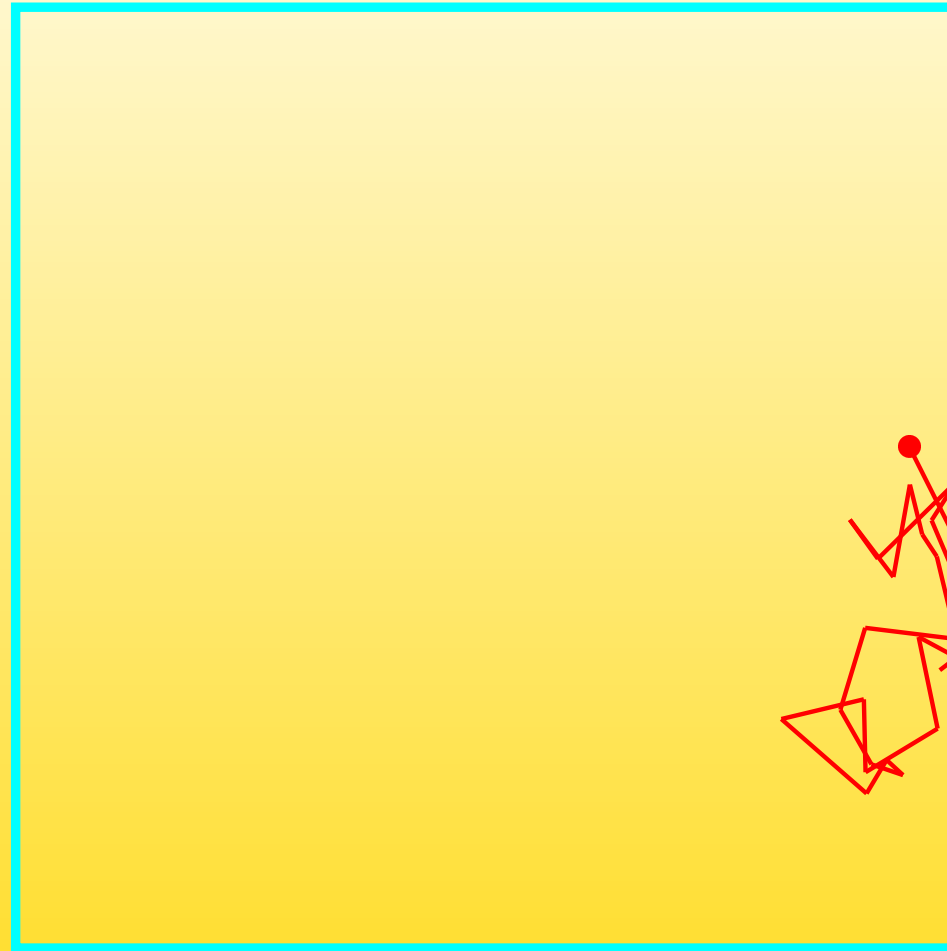


Figure 5: Random walk

End of animation



## 7 – Random walk

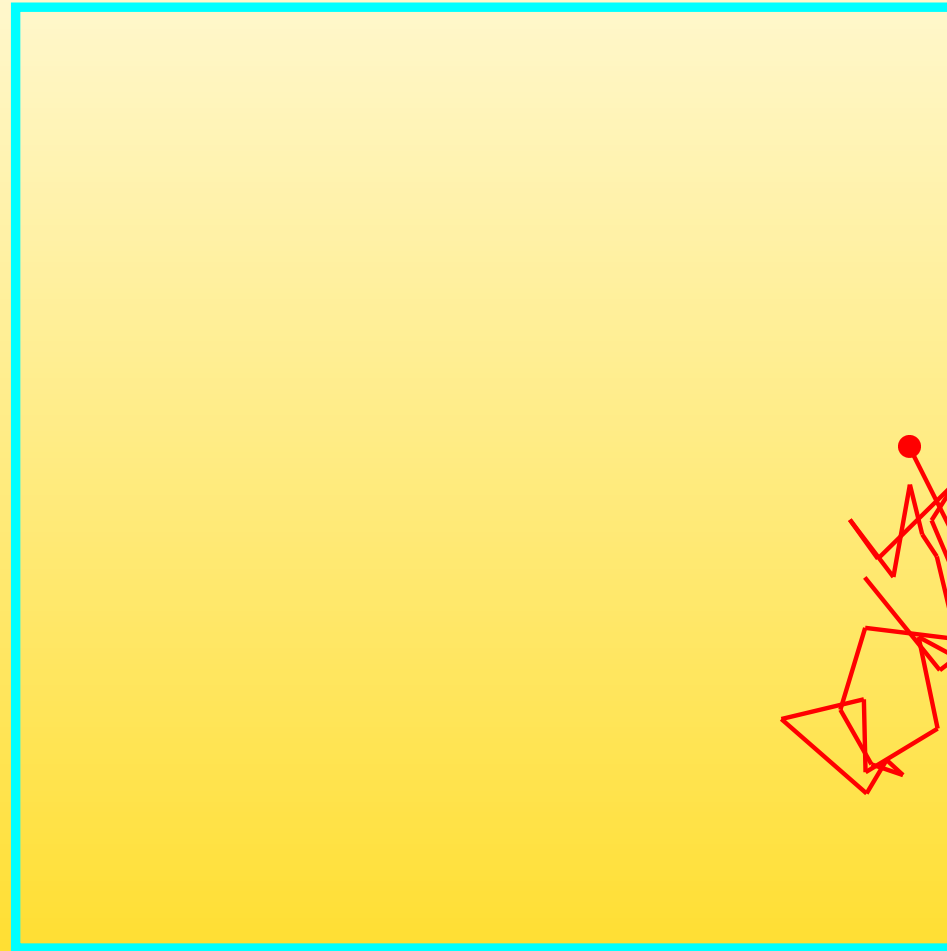


Figure 5: Random walk

End of animation

## 7 – Random walk

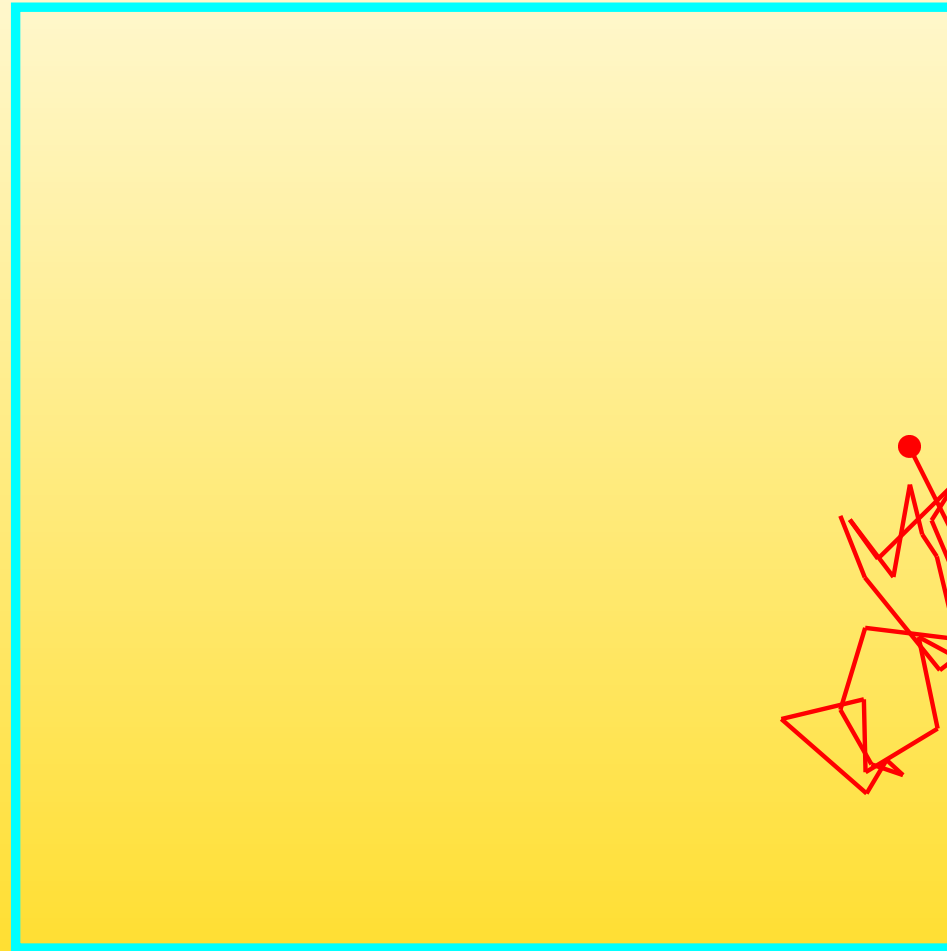


Figure 5: Random walk

End of animation

## 7 – Random walk

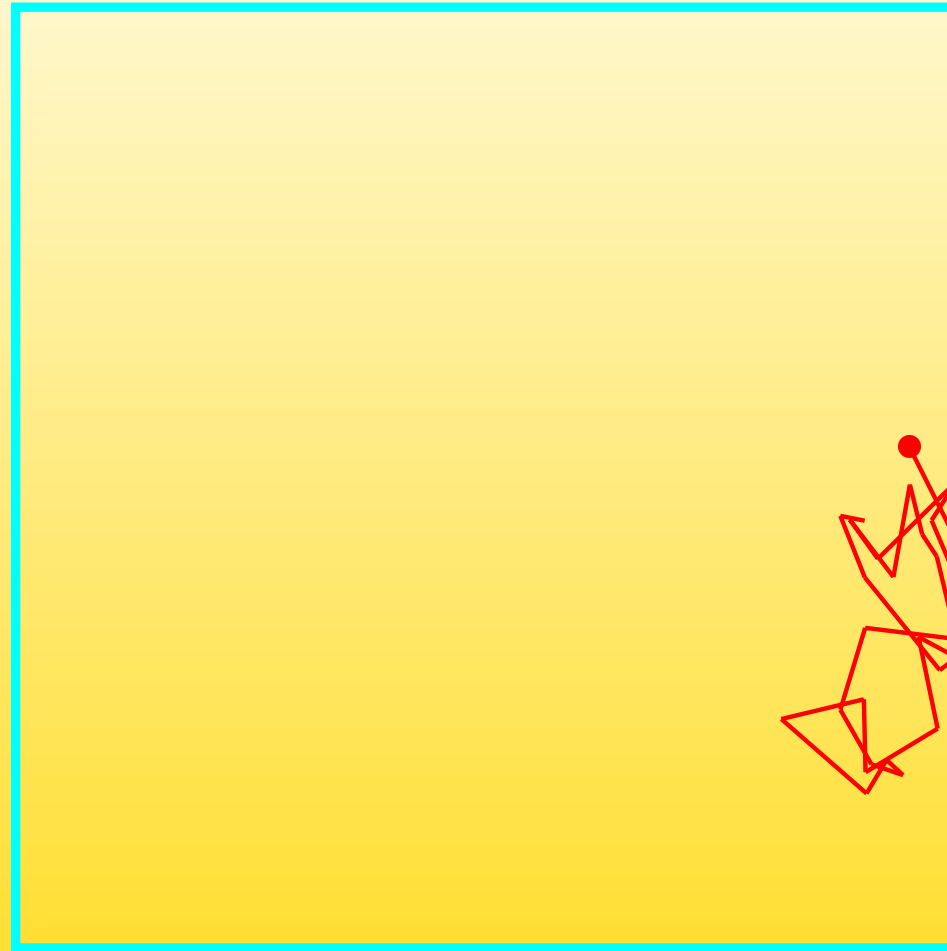


Figure 5: Random walk

End of animation

## 7 – Random walk

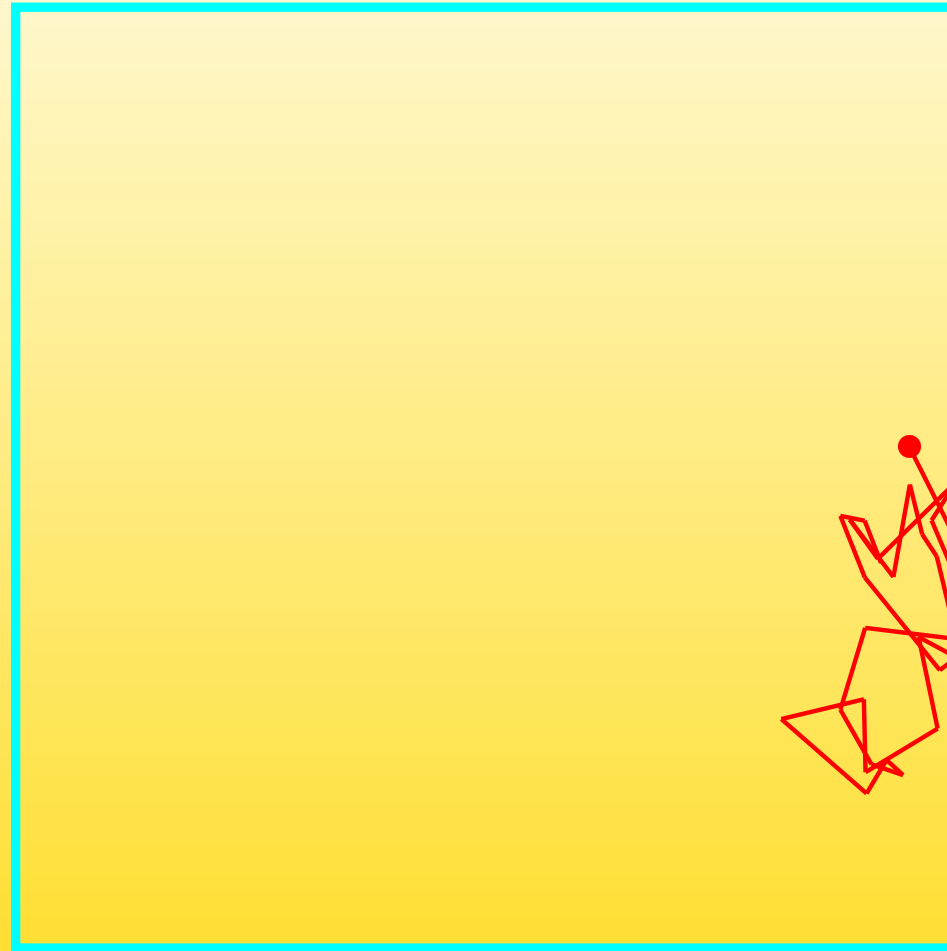


Figure 5: Random walk

End of animation

## 7 – Random walk

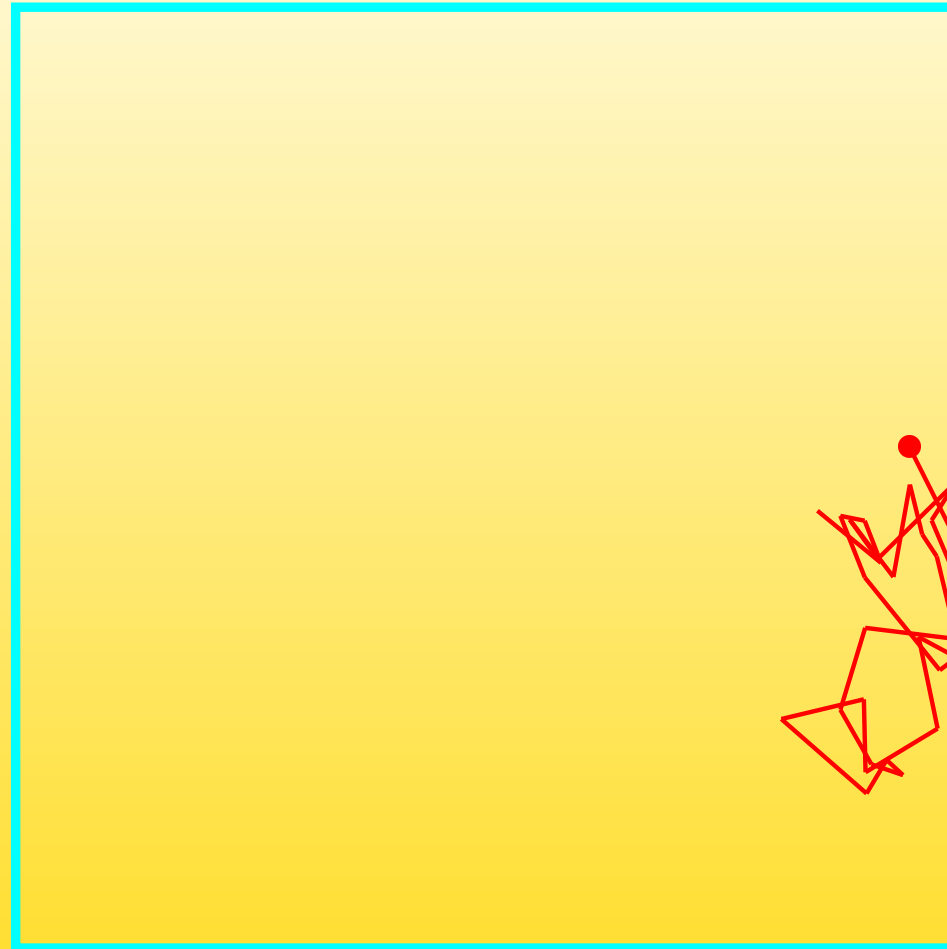


Figure 5: Random walk

End of animation

## 7 – Random walk

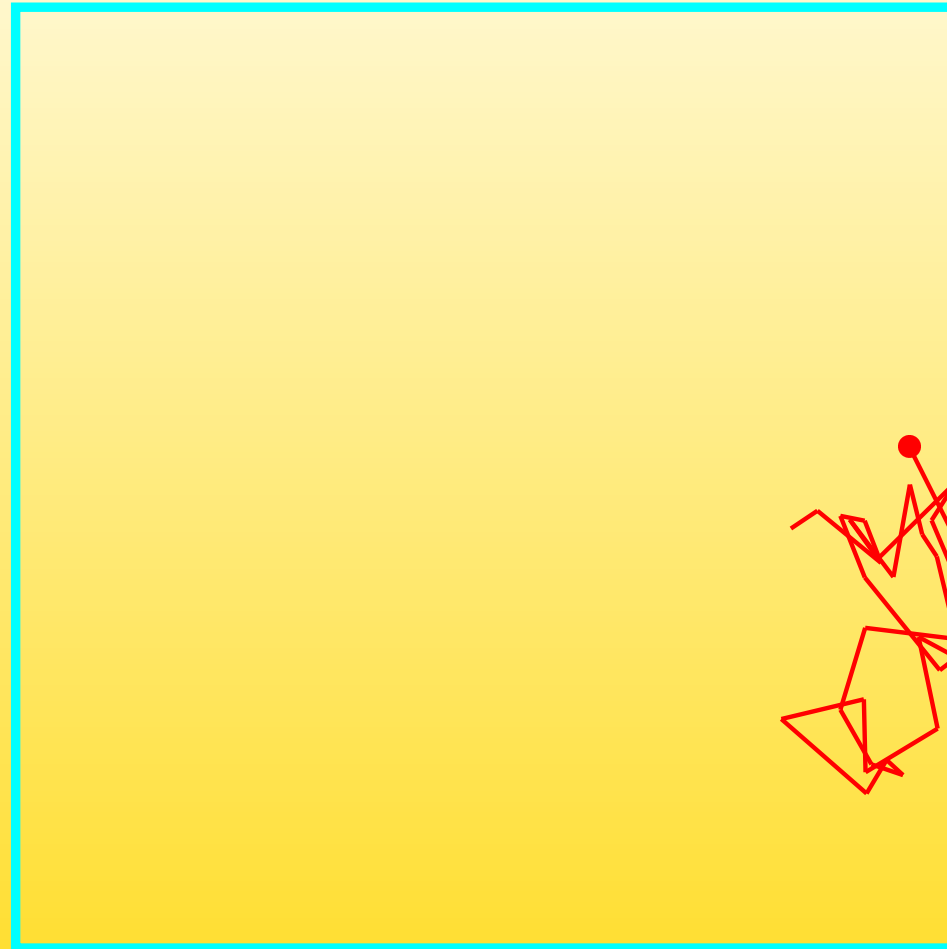


Figure 5: Random walk

End of animation

## 7 – Random walk

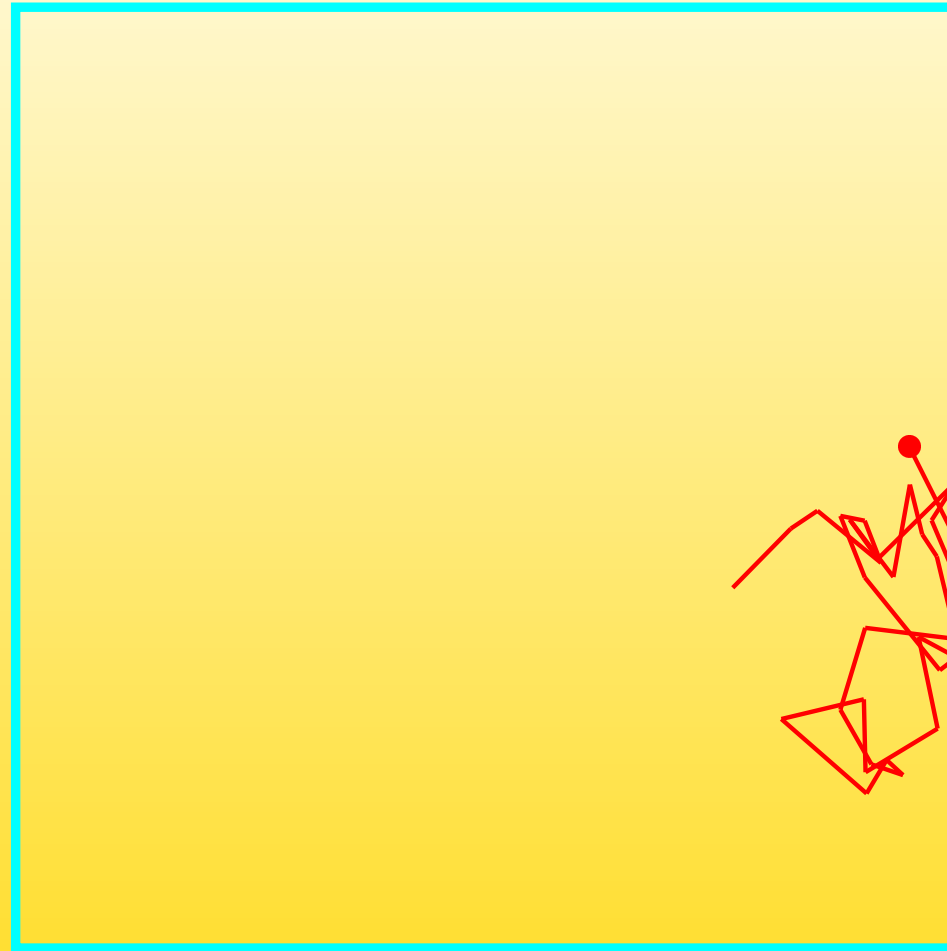


Figure 5: Random walk

End of animation

## 7 – Random walk

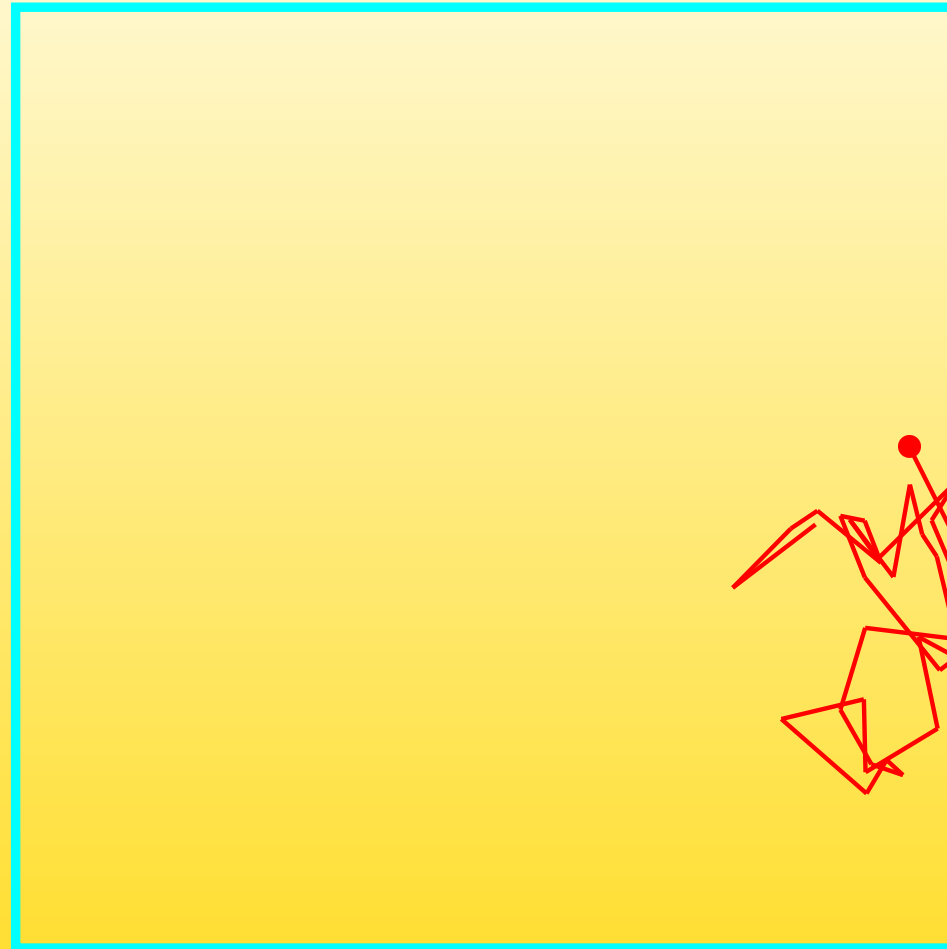


Figure 5: Random walk

End of animation



## 7 – Random walk



Figure 5: Random walk

End of animation

## 7 – Random walk



Figure 5: Random walk

End of animation

## 7 – Random walk

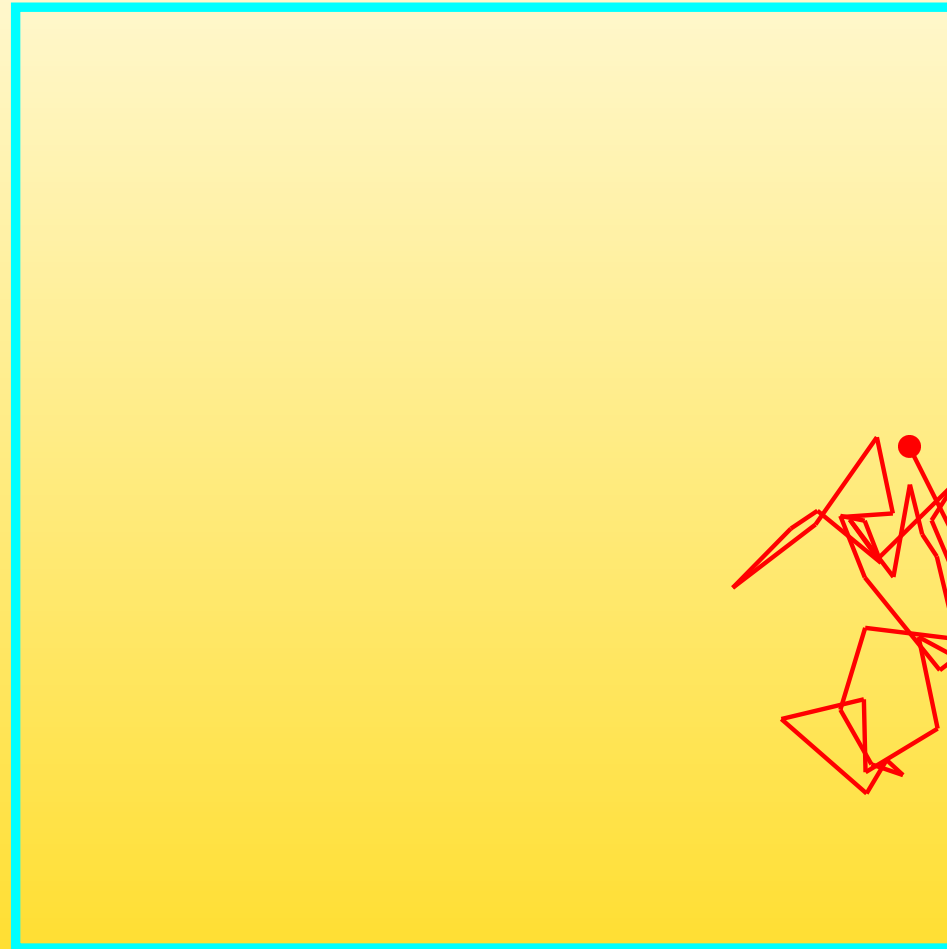


Figure 5: Random walk

End of animation

## 7 – Random walk

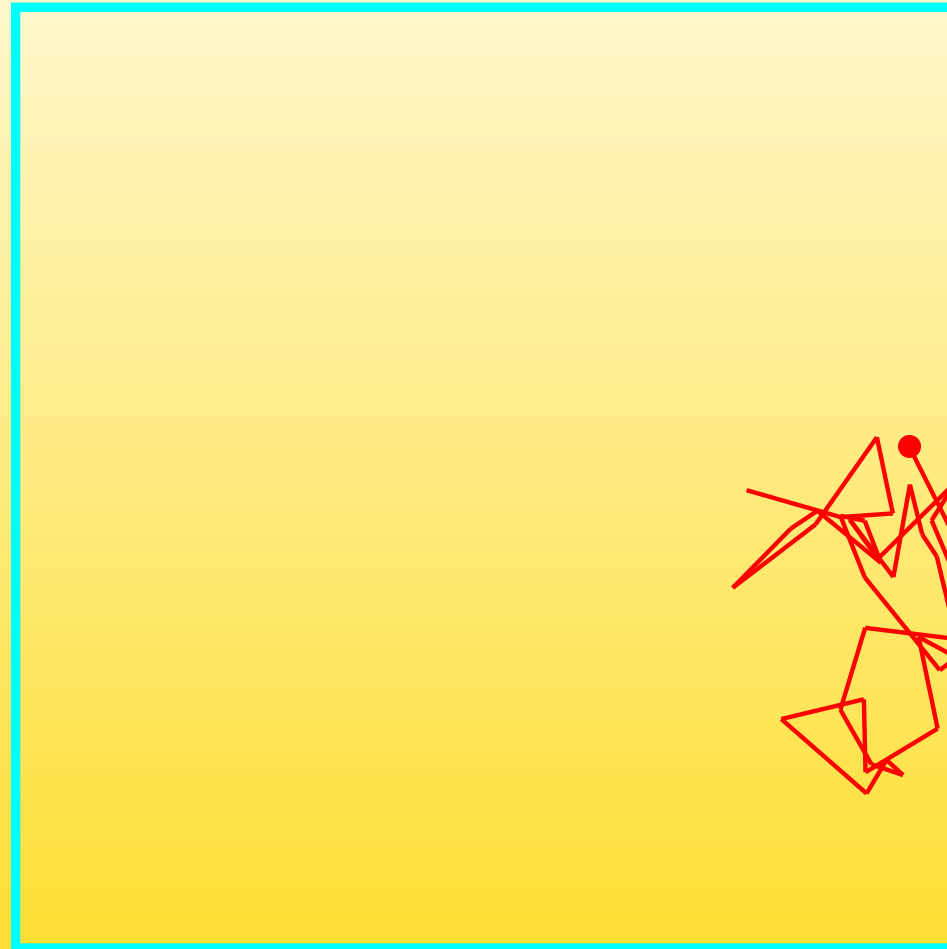


Figure 5: Random walk

End of animation

## 7 – Random walk

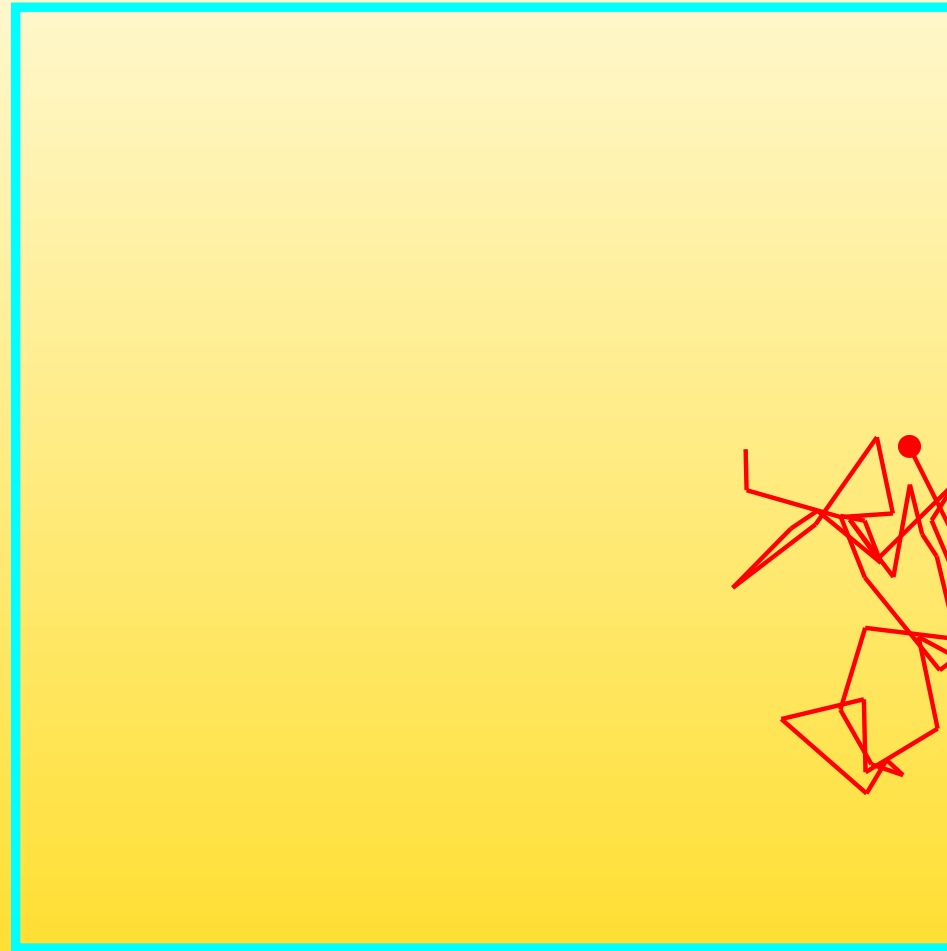


Figure 5: Random walk

End of animation

## 7 – Random walk

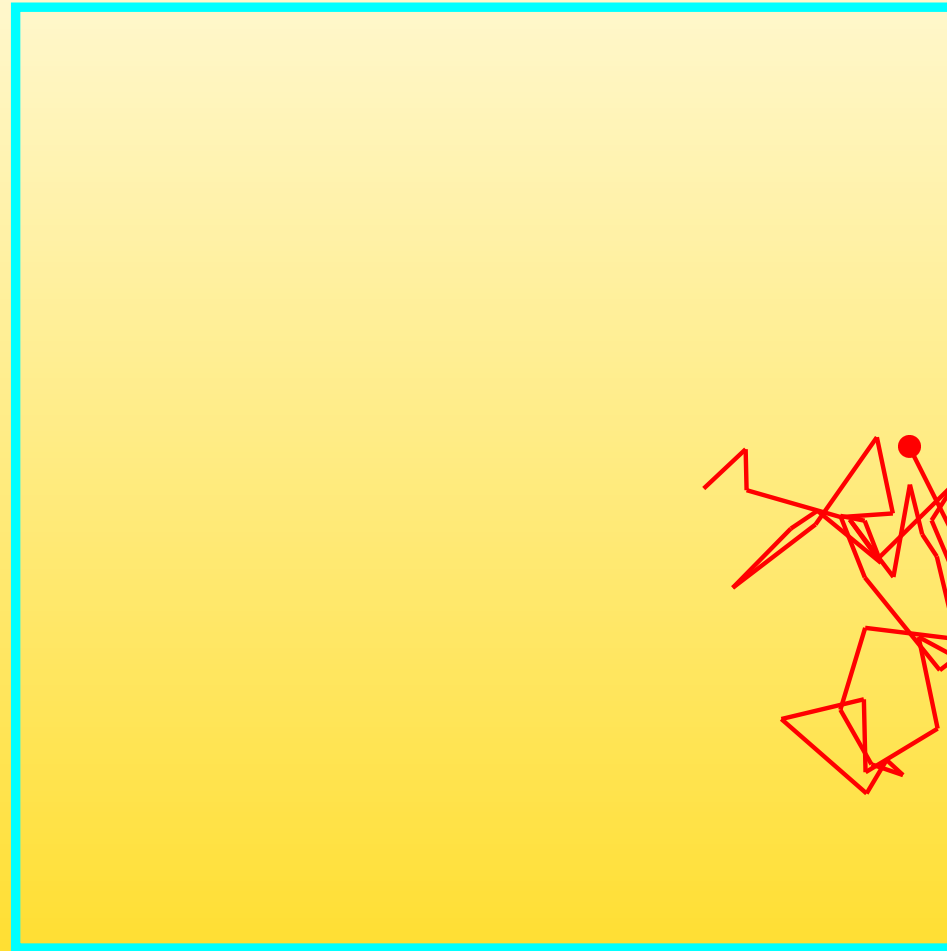


Figure 5: Random walk

End of animation

## 8 – Text shown through a lens

### L'Éternité

Elle est retrouvée.	Puisque de vous seules,
Quoi ? — L'Éternité.	Braises de satin,
C'est la mer allée	Le devoir s'exhale
Avec le soleil.	Sans qu'on dise : enfin.

Âme sentinelle	Là pas d'espérance,
Murmurons l'aveu	Nul orietur.
De la nuit si nulle	Science avec patience,
Et du jour en feu.	Le supplice est sûr.

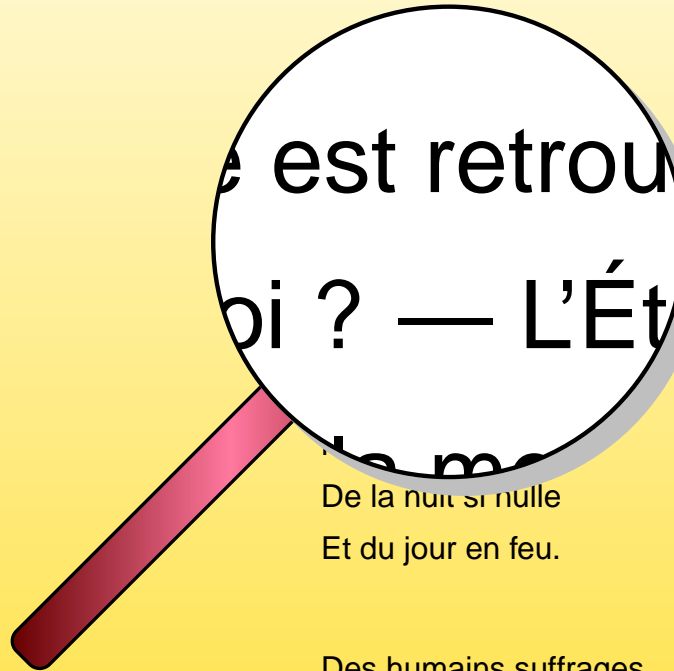
Des humains suffrages	Elle est retrouvée.
Des communs élans	Quoi ? — L'Éternité.
Là tu te dégages	C'est la mer allée
Et voles selon.	Avec le soleil.

**Arthur Rimbaud**

End of animation

## 8 – Text shown through a lens

### L'Éternité



Puisque de vous seules,  
Braises de satin,  
Le devoir s'exhale  
Sans qu'on dise : enfin.

Là pas d'espérance,  
Nul orietur.  
Science avec patience,  
Le supplice est sûr.

Elle est retrouvée.  
Quoi ? — L'Éternité.  
C'est la mer allée  
Avec le soleil.

Des humains suffrages  
Des communs élans  
Là tu te dégages  
Et voles selon.

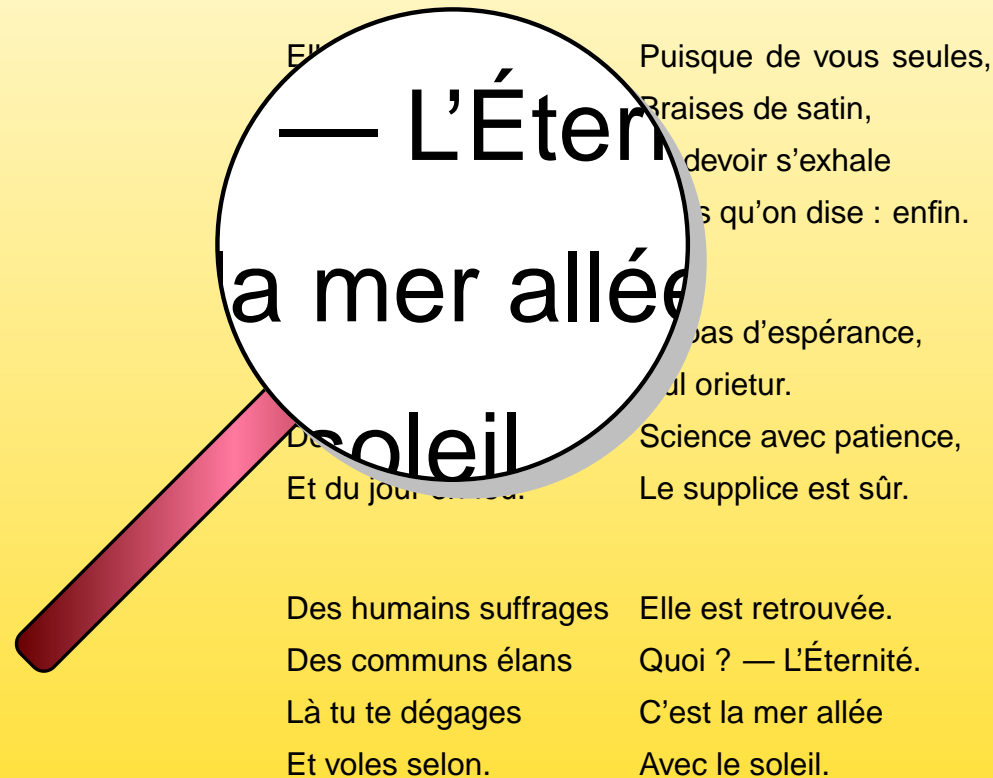
**Arthur Rimbaud**

End of animation



## 8 – Text shown through a lens

### L'Éternité



Arthur Rimbaud

End of animation

## 8 – Text shown through a lens

### L'Éternité

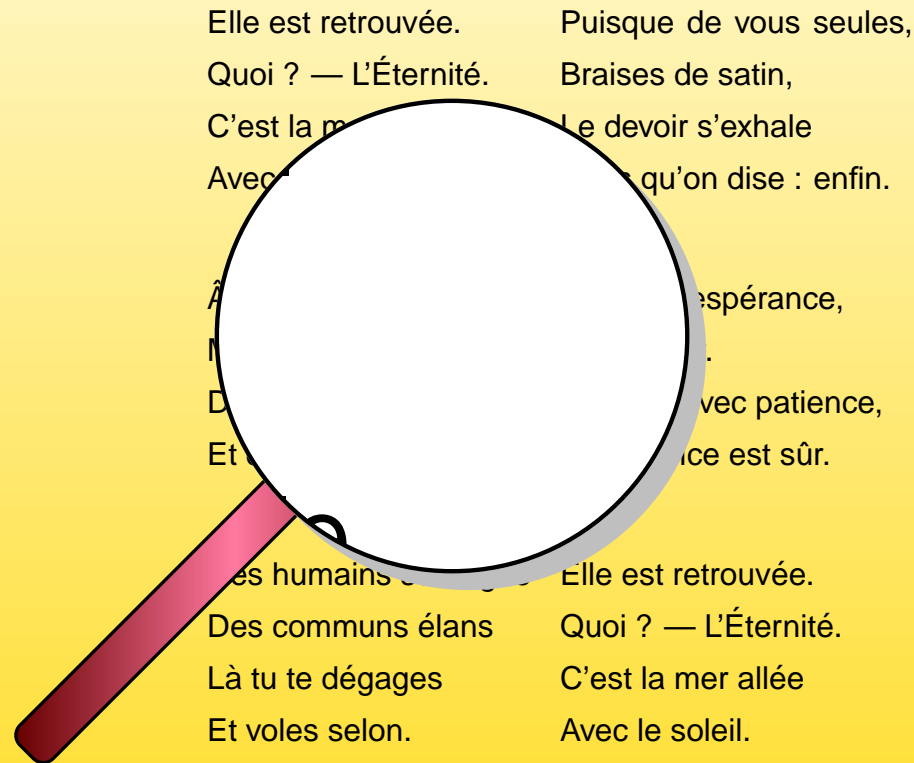


**Arthur Rimbaud**

End of animation

## 8 – Text shown through a lens

### L'Éternité



Arthur Rimbaud

End of animation

## 8 – Text shown through a lens

### L'Éternité

Elle est retrouvée. Puisque de vous seules,  
Quoi ? — L'Éternité. Braises de satin,  
C'est la mer allée Le devoir s'exhale  
Avec le soleil. Sans qu'on dise : enfin.

Âme...spérance,  
Mur...patience,  
De...est sûr.

Des...retrouvée.  
D...communs...? — L'Éternité.  
Et tu te dégages C'est la mer allée  
Et voles selon. Avec le soleil.

Arthur Rimbaud

End of animation

## 8 – Text shown through a lens

### L'Éternité

Elle est retrouvée.	Puisque de vous seules,
Quoi ? — L'Éternité.	Braises de satin,
C'est la mer allée	Le devoir s'exhale
Avec le soleil.	Sans qu'on dise : enfin.

Âme sentinelle,	espérance,
Murmure	
De la mer	Patience,
Et du jour	sûr.

Des humides	née.
Des comètes	Éternité.
Là tu me gages	mer allée
Enfances selon.	Avec le soleil.

Arthur Rimbaud

End of animation

## 8 – Text shown through a lens

### L'Éternité

Elle est retrouvée.	Puisque de vous seules,
Quoi ? — L'Éternité.	Braises de satin,
C'est la mer allée	Le devoir s'exhale
Avec le soleil.	Sans qu'on dise : enfin.

Âme sentinelle  
Murmurons l'air  
De la nuit si  
Et du jour  
Des humes  
Des comm  
Là tu te déco  
Et voles

Scien  
Le s

Patience,  
ir.  
té.  
ee  
ail.

Arthur Rimbaud

End of animation

## 8 – Text shown through a lens

### L'Éternité

Elle est retrouvée.	Puisque de vous seules,
Quoi ? — L'Éternité.	Braises de satin,
C'est la mer allée	Le devoir s'exhale
Avec le soleil.	Sans qu'on dise : enfin.

Âme sentinelle	Là pas d'espérance,
Murmurons l'aveu	Null orietur.
De la nuit si nulle	patience,
Et du jour en fe	fir.

Des humain  
Des commu  
Là tu te déga  
Et voles selon.

Le sup

Arthur Rimbaud

End of animation

## 8 – Text shown through a lens

### L'Éternité

Elle est retrouvée.	Puisque de vous seules,
Quoi ? — L'Éternité.	Braises de satin,
C'est la mer allée	Le devoir s'exhale
Avec le soleil.	Sans qu'on dise : enfin.

Âme sentinelle	Là pas d'espérance,
Murmurons l'aveu	Nul orietur.
De la nuit si nulle	Science avec patience,
Et du jour en feu.	sûr.

Des humains si	Elle est re
Des communs	aud
Là tu te dégag	
Et voles selon.	

End of animation



## 8 – Text shown through a lens

### L'Éternité

Elle est retrouvée.	Puisque de vous seules,
Quoi ? — L'Éternité.	Braises de satin,
C'est la mer allée	Le devoir s'exhale
Avec le soleil.	Sans qu'on dise : enfin.

Âme sentinelle	Là pas d'espérance,
Murmurons l'aveu	Nul orietur.
De la nuit si nulle	Science avec patience,
Et du jour en feu.	Le supplice est sûr.

Des humains suffrag	est retre
Des communs élar	
Là tu te dégages	
Et voles selon.	i ? — L'É

End of animation

**9 – Text progressively shown**

End of animation

9 – Text progressively shown

D

End of animation

9 – Text progressively shown

Do

End of animation

9 – Text progressively shown

Do

End of animation

9 – Text progressively shown

Do n

End of animation

9 – Text progressively shown

Do no

End of animation

9 – Text progressively shown

Do not

End of animation



9 – Text progressively shown

Do not

End of animation

9 – Text progressively shown

Do not d

End of animation

9 – Text progressively shown

Do not do

End of animation

9 – Text progressively shown

Do not do

End of animation

9 – Text progressively shown

Do not do !

End of animation

9 – Text progressively shown

Do not do li

End of animation

9 – Text progressively shown

Do not do lik

End of animation

9 – Text progressively shown

Do not do like

End of animation



9 – Text progressively shown

Do not do like

End of animation

9 – Text progressively shown

Do not do like m

End of animation

9 – Text progressively shown

Do not do like me

End of animation

9 – Text progressively shown

Do not do like me!

End of animation

# Demonstration of animated graphics

10 – Text progressively vanished

End of animation

# Demonstration of animated graphics

10 – Text progressively vanished

Oh! my dear friends...

It is time to tell you

good bye!

See you again soon!

End of animation

# Demonstration of animated graphics

10 – Text progressively vanished

Oh! my dear friends...

It is time to tell you

good bye!

See you again soon!

End of animation

# Demonstration of animated graphics

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See you again soon!

End of animation

# Demonstration of animated graphics

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It is time to tell you

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See you again soon!

End of animation



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See you again soon!

End of animation

# Demonstration of animated graphics

## 10 – Text progressively vanished

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It is time to tell you

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See you again soon!

End of animation

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See you again soon!

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# Demonstration of animated graphics

## 10 – Text progressively vanished

Oh! my dear friends...

It is time to tell you

good bye!

See you again soon!

End of animation



# Demonstration of animated graphics

## 10 – Text progressively vanished

Oh! my dear friends...

It is time to tell you

good bye!

See you again soon!

End of animation

## 11 – Building of a regular polygon of seventeen sides

Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

1: Definition of the center  $O$  of the polygon



Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

2: Definition of the point  $P_1$  at 5 units from  $O$



Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

3: Circle of center  $O$  with the point  $P_1$  on it

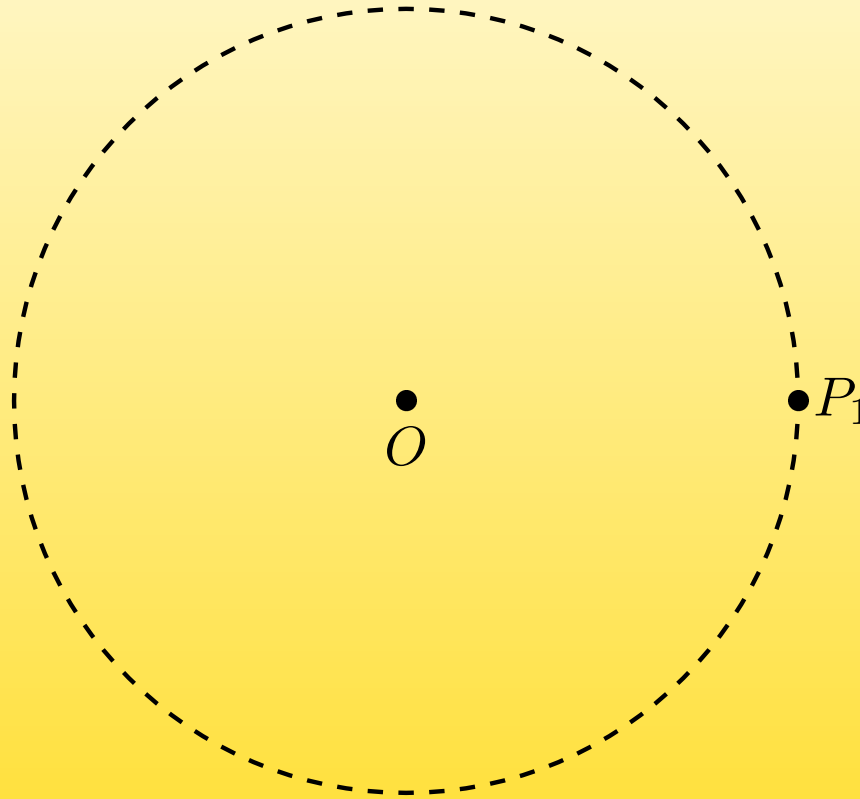


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

4: Definition of the point  $PP_1$ , symmetric to the point  $P_1$

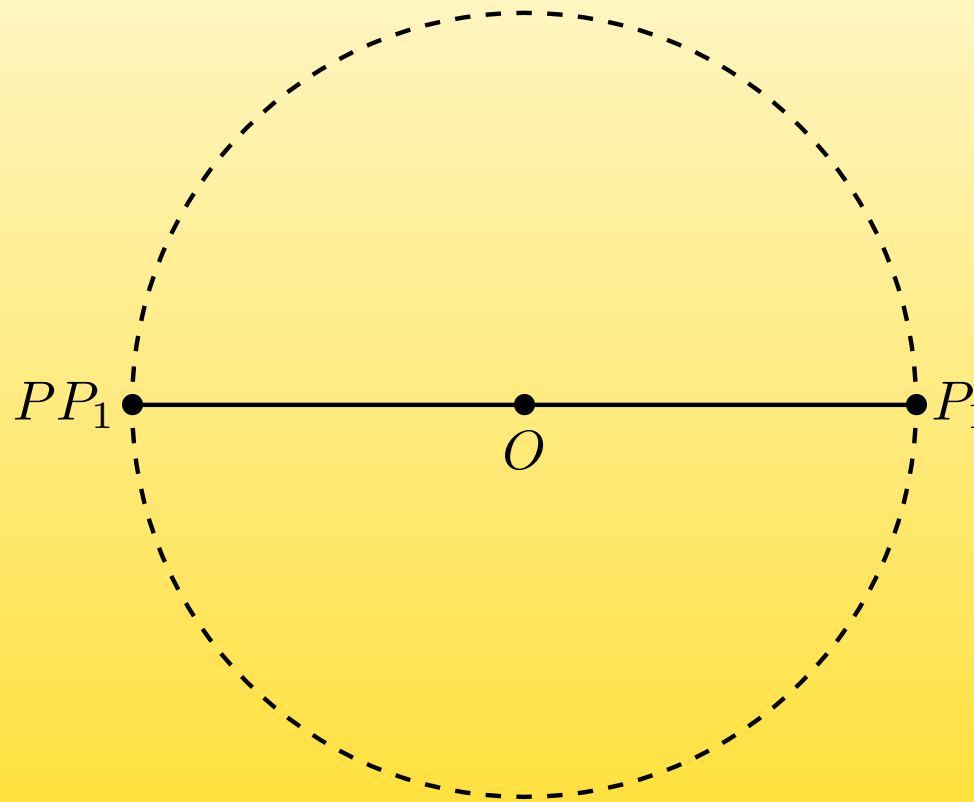


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

5: Definition of the point  $B$ , with  $P_1-O-B$  a right angle

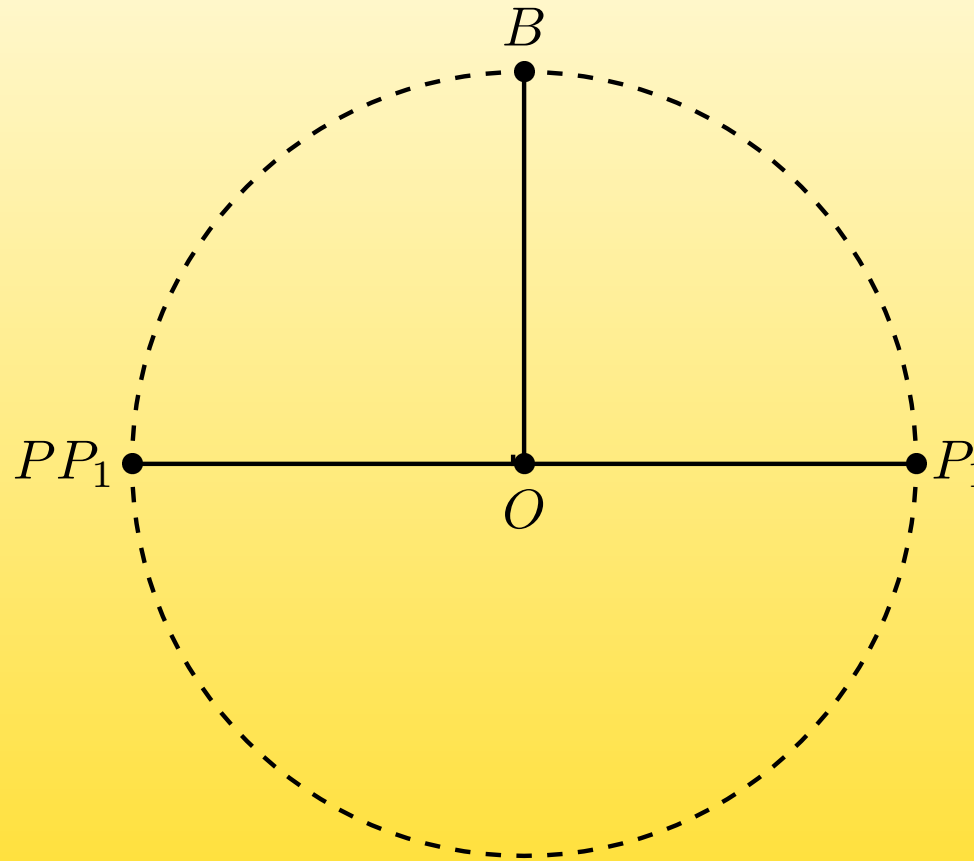


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

6: Definition of the point  $J$ , as 0.25 of  $O$ - $B$

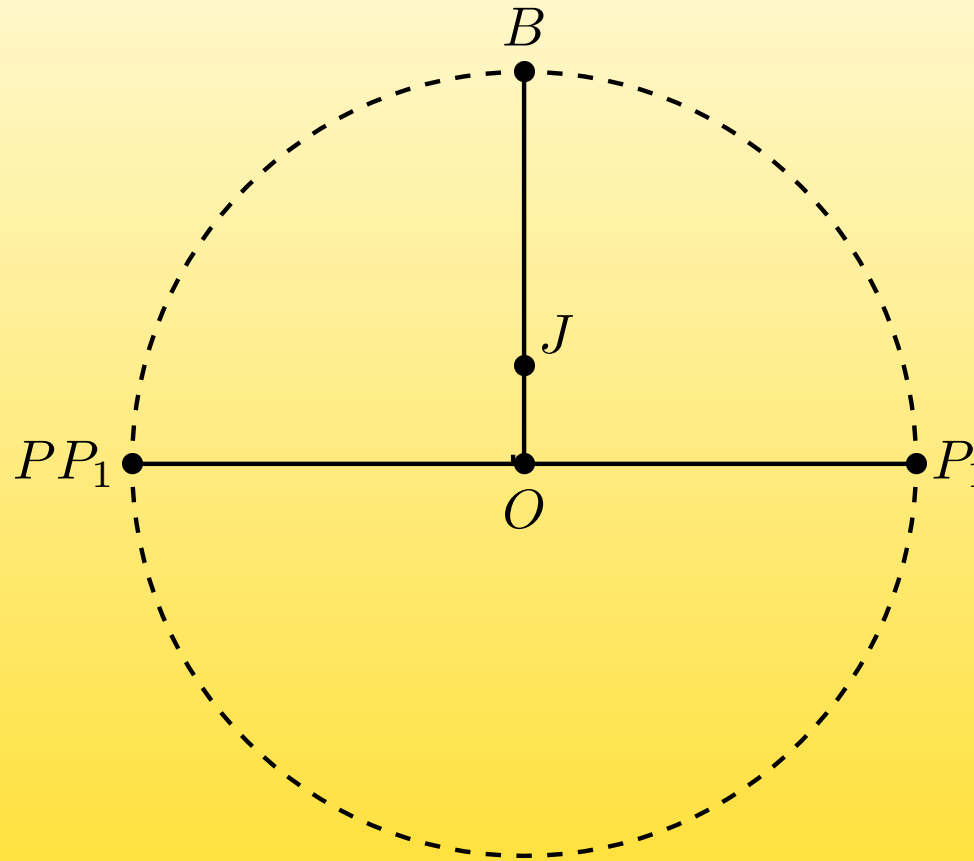


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation



## 11 – Building of a regular polygon of seventeen sides

7: Line between the points  $J$  and  $P_1$

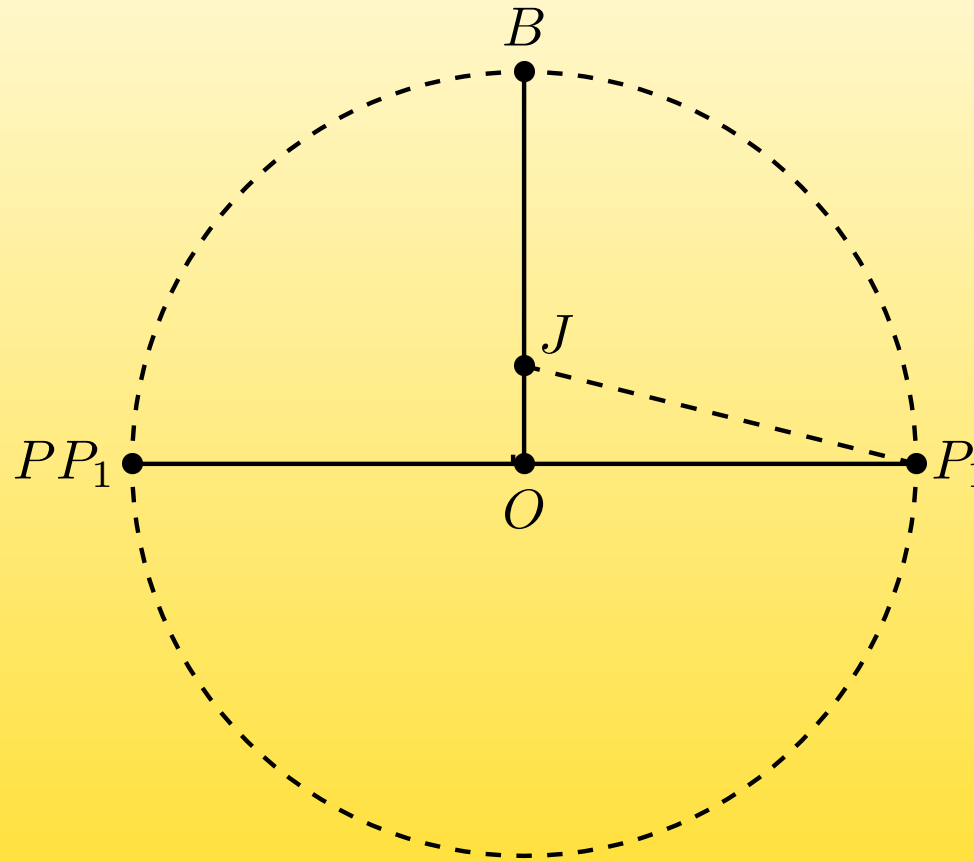


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

8: Bissectrice of the angle defined by the points  $J$ ,  $O$ , and  $P_1$ , which define the point  $PE1$

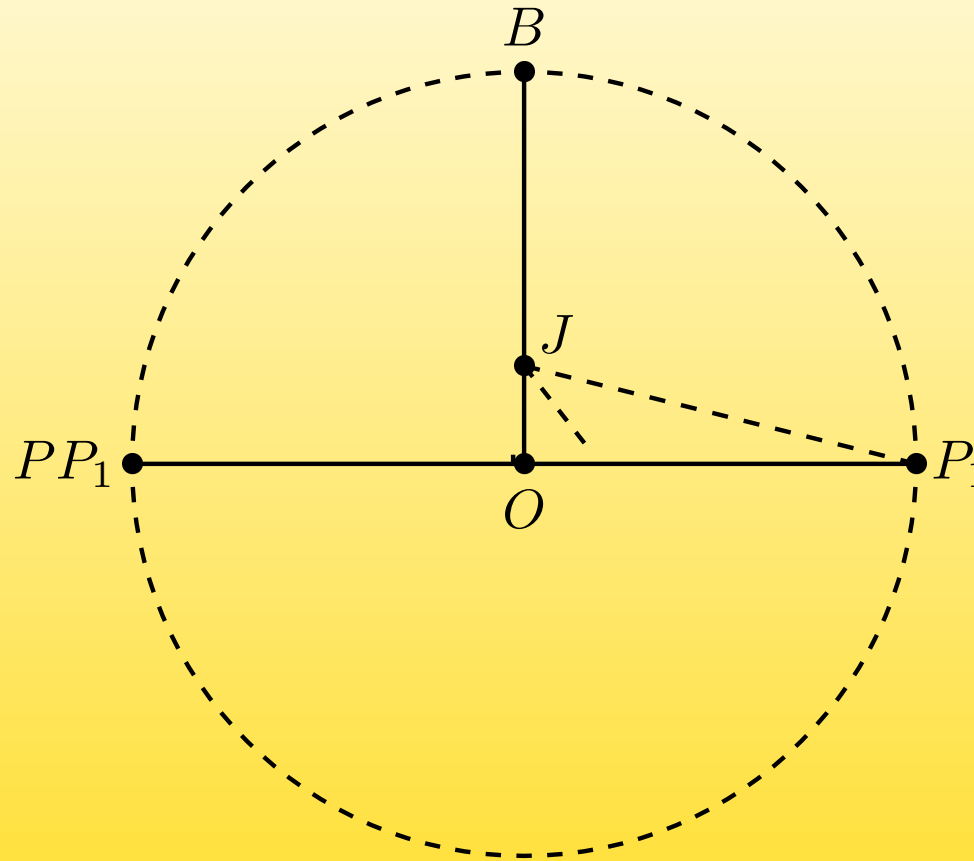


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

9: Bissectrice of the angle defined by the points  $J$ ,  $O$ , and  $PE1$ , which define the point  $PE2$

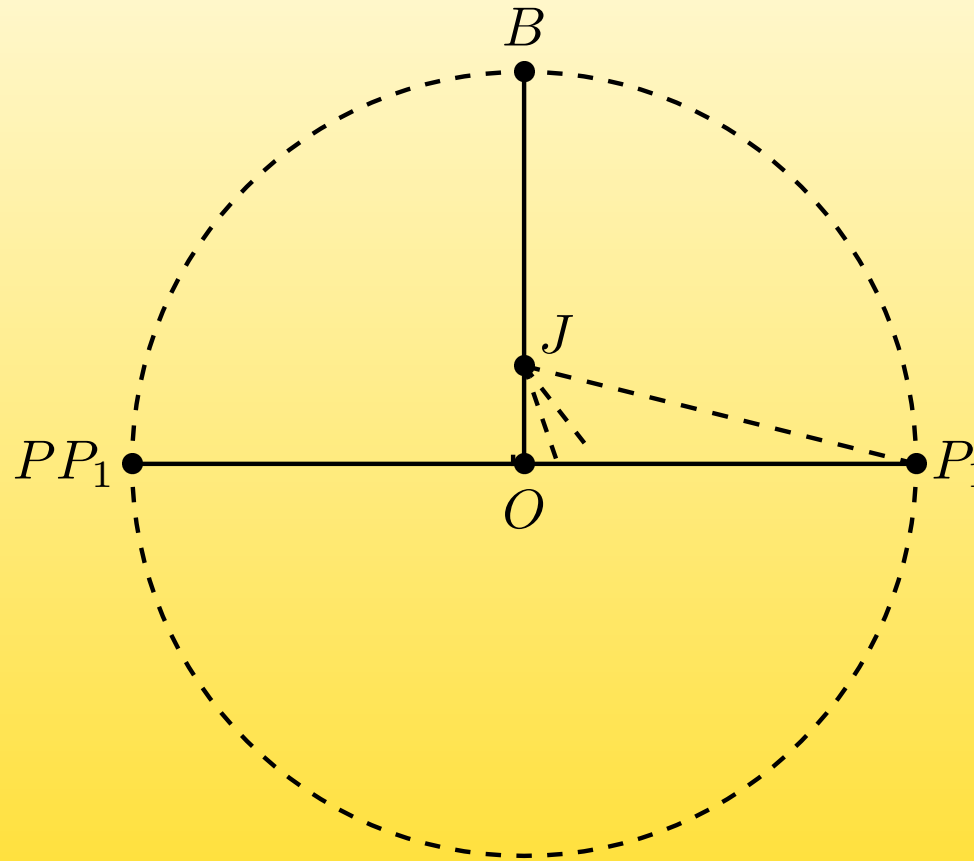


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

10: Definition of the point **E**, as intersection of the two lines **O-P<sub>1</sub>** and **J-PE2**

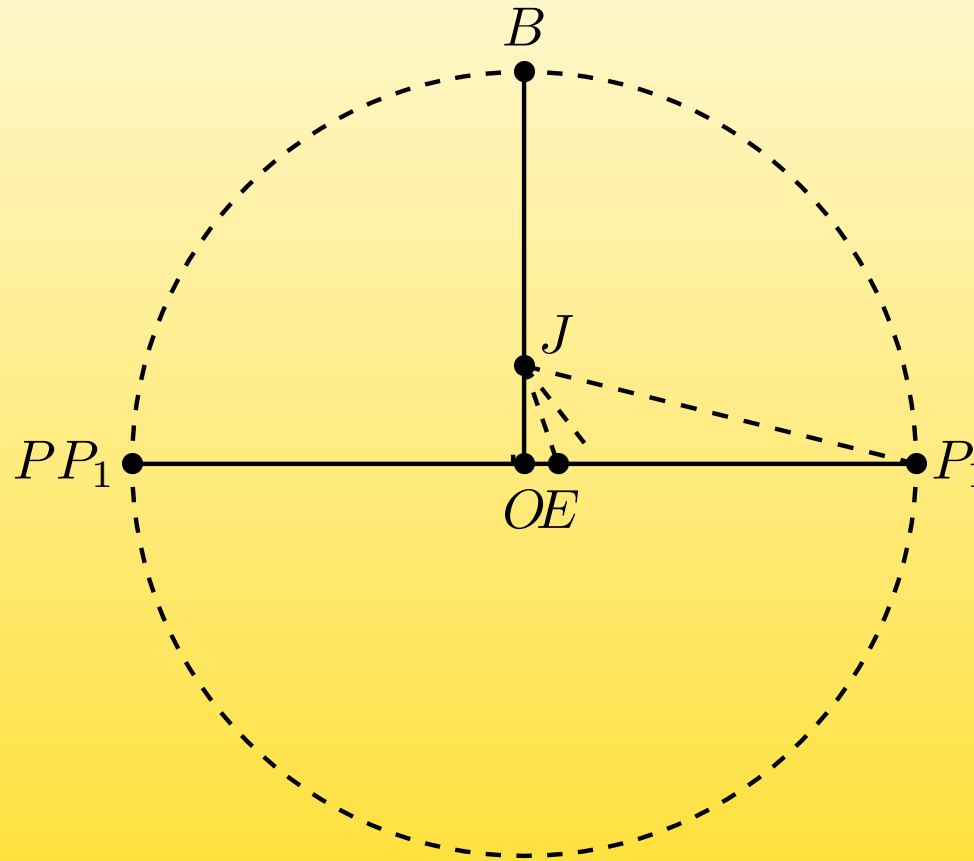


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

11: Definition of the point **F**, as intersection of the two lines **O-P<sub>1</sub>** and **J-PF<sub>1</sub>**, with **PF<sub>1</sub>** defined by **J** and **E**

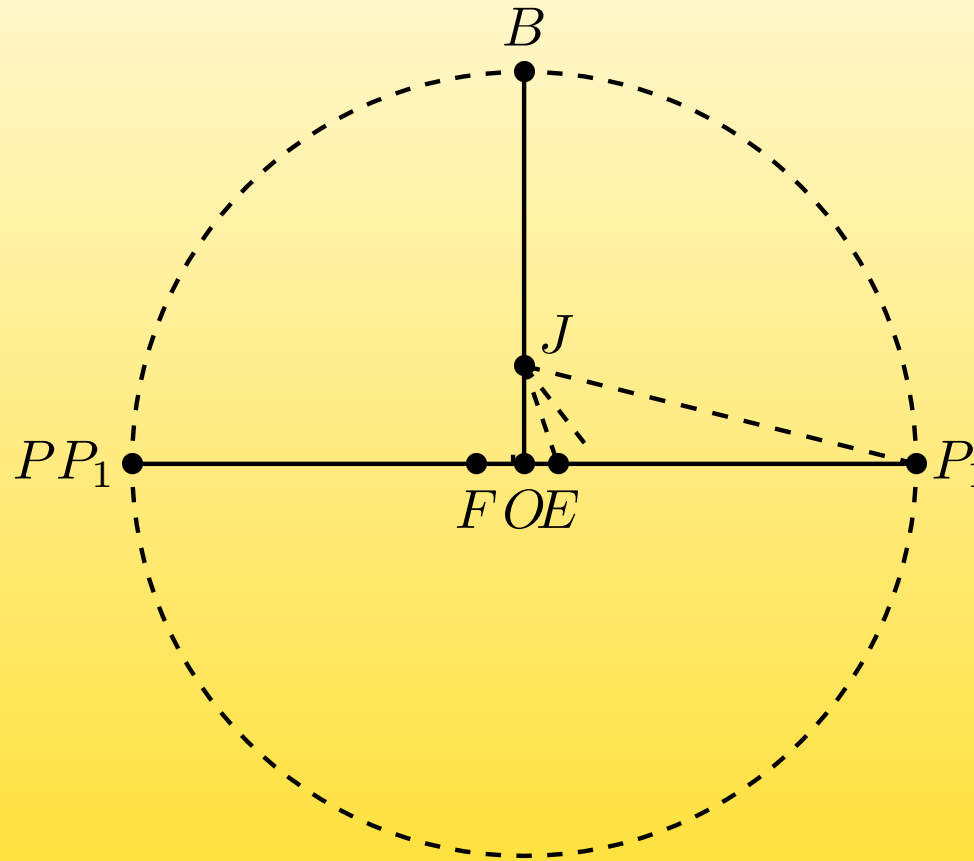


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

12: Definition of the point  $MFP_1$ , as middle of the line  $F-P_1$

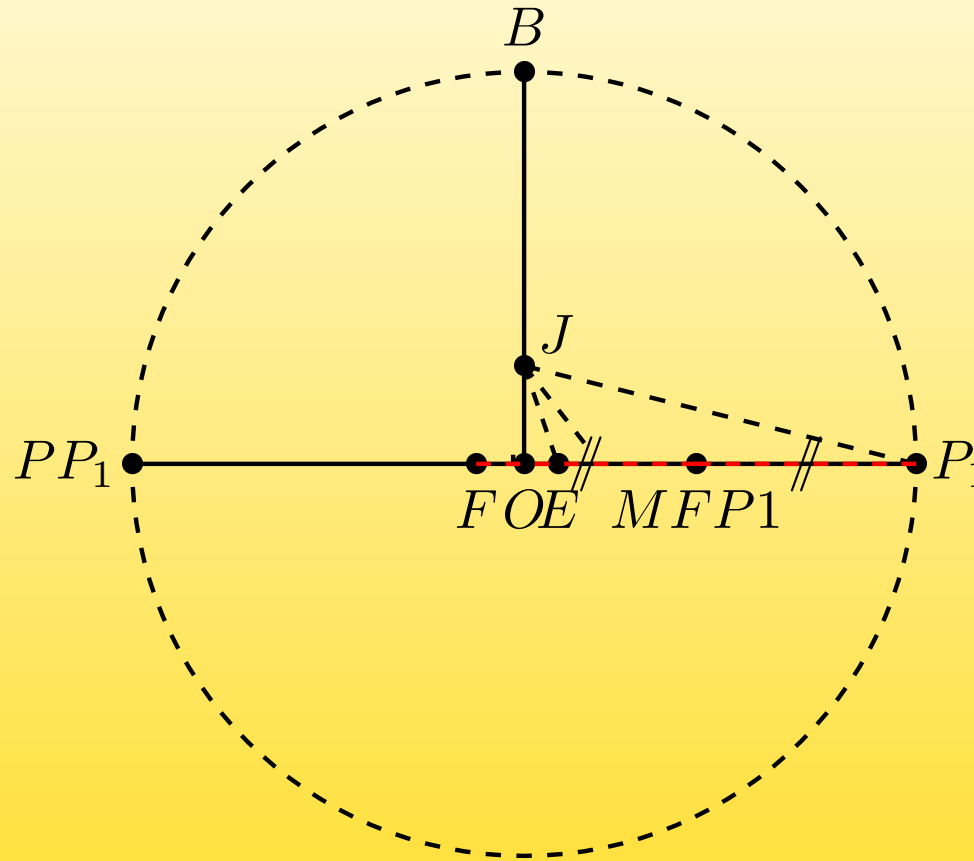


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

13: Circle of center  $MFP1$  with point  $P_1$  on it

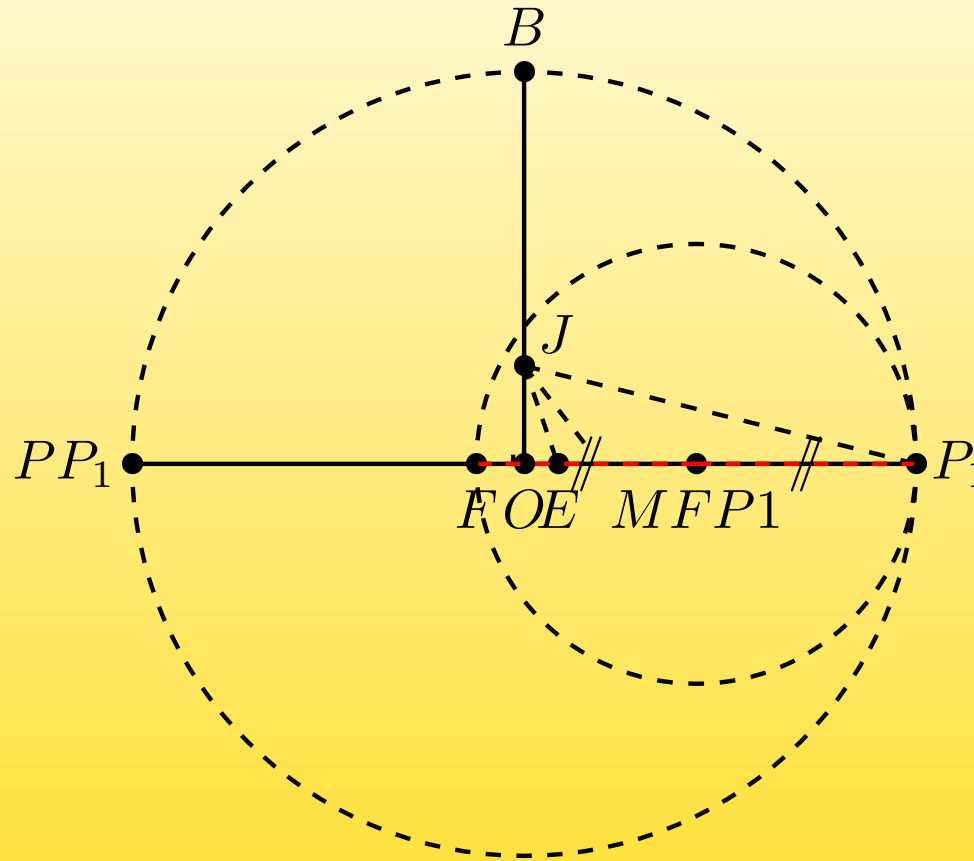


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

14: Definition of the point **K**, as intersection of the line **O-B** and the circle of center **MFP1** and radius **P\_1**

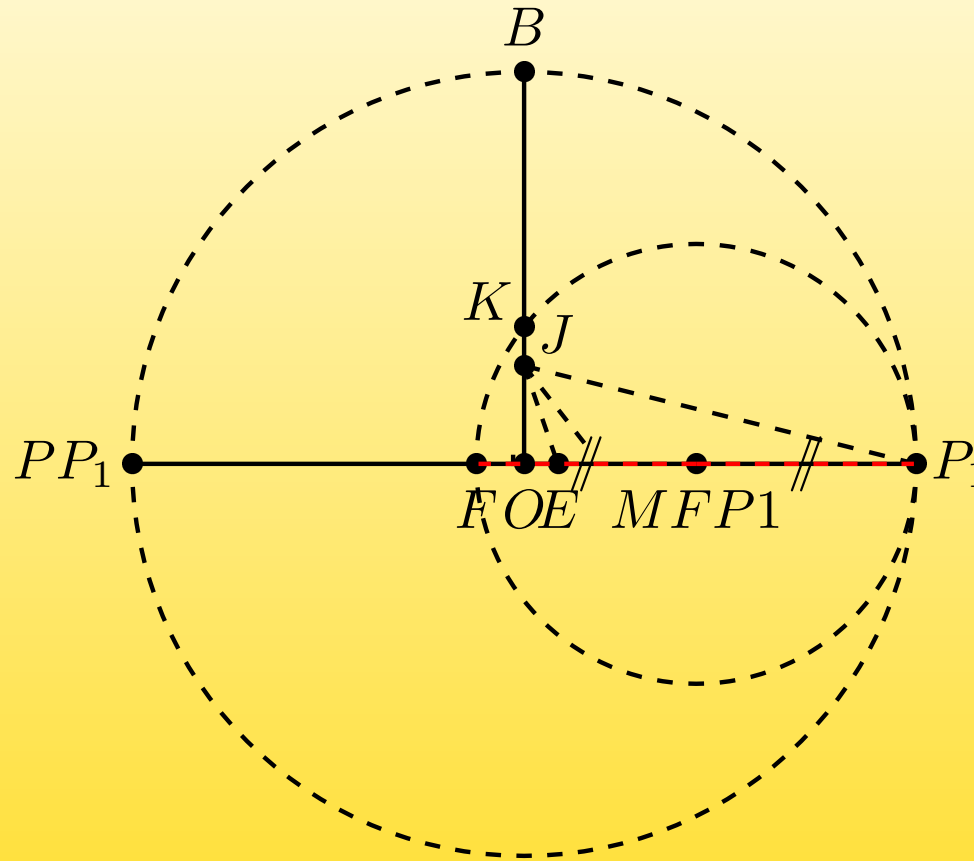


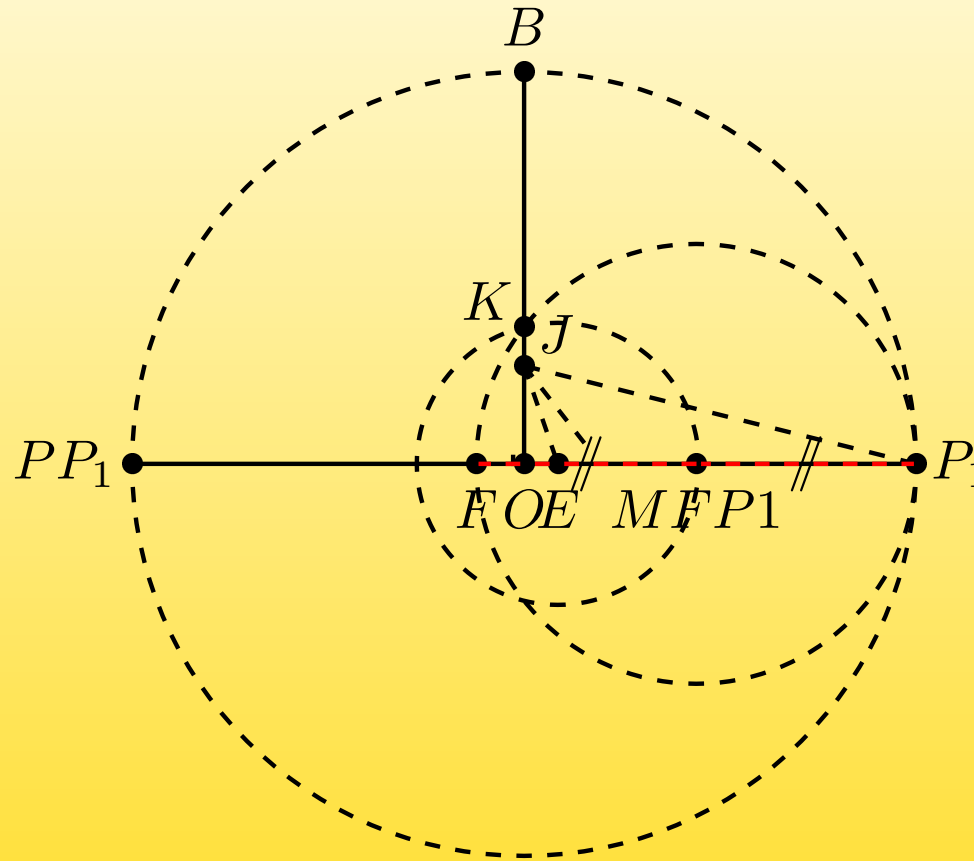
Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation



15: Circle of center **E** with point **K** on it



This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

16: Definition of the points  $N_4$  and  $N_6$ , as intersection of the line  $P_1-E$  and the circle of center  $E$  radius  $K$

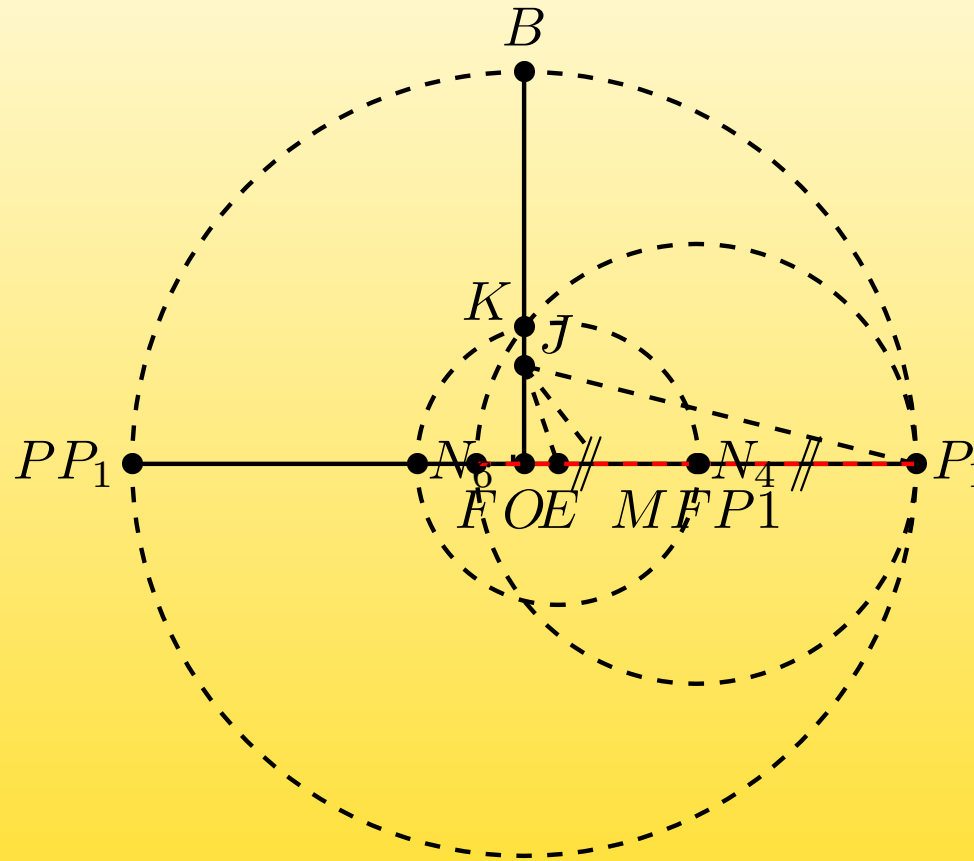
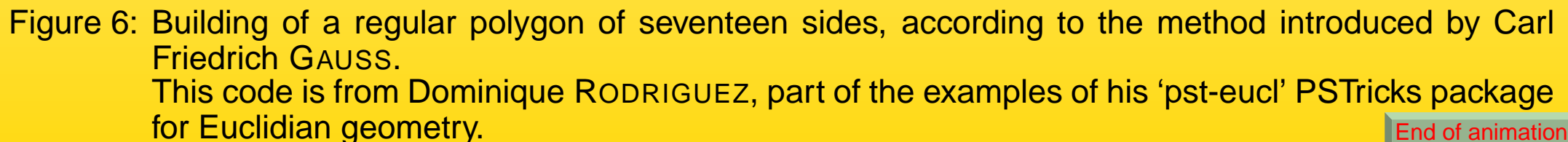


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

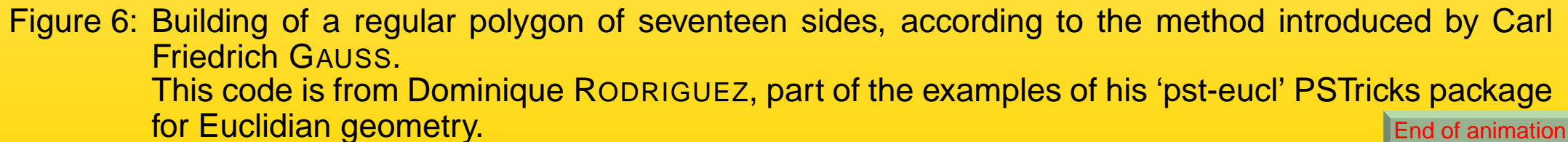
End of animation

17: Definition of the points **P\_6** and **P\_13**, as intersection of the line **N\_6-PP\_6** and the original circle



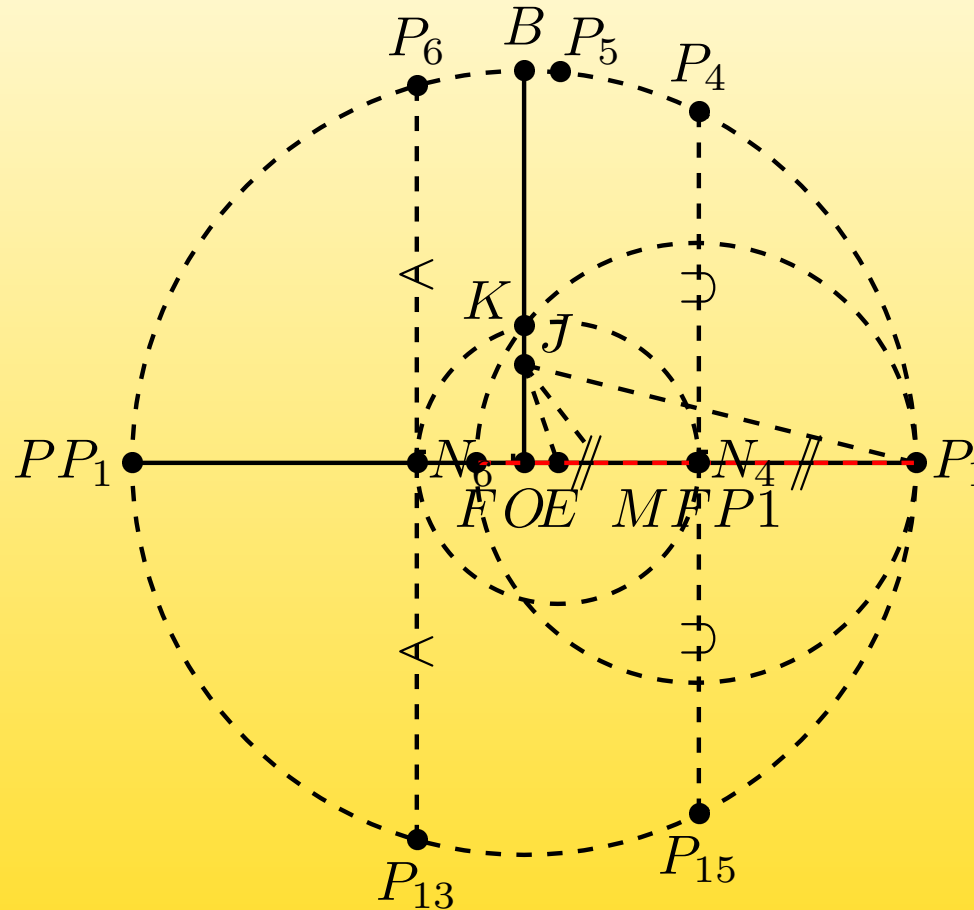
## Denis Girou

18: Definition of the points **P\_4** and **P\_15**, as intersection of the line **N\_4-PP\_4** and the original circle



## Denis Girou

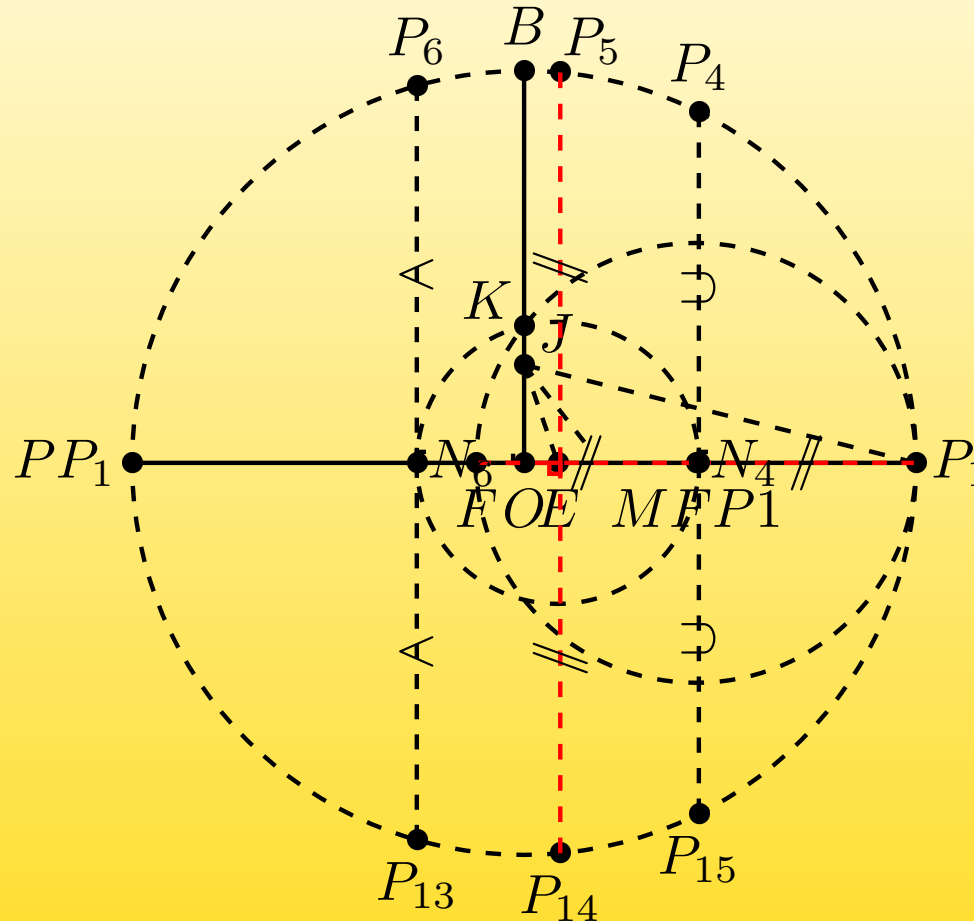
19: Bissectrice of the angle defined by the points P\_4, O, and P\_6, which define the point P\_5



This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

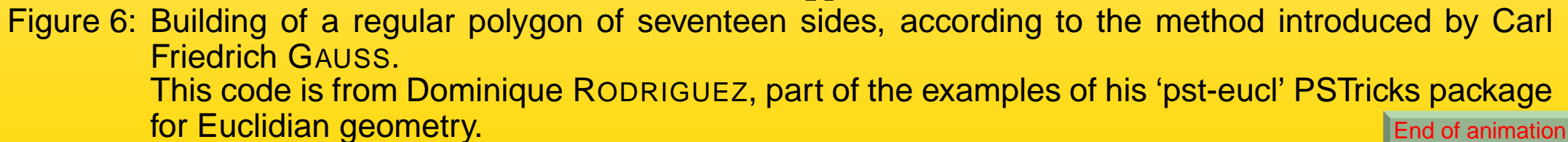
20: Definition of the point **P\_14** on the original circle, by orthogonal symmetry with the point **P\_5**



This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

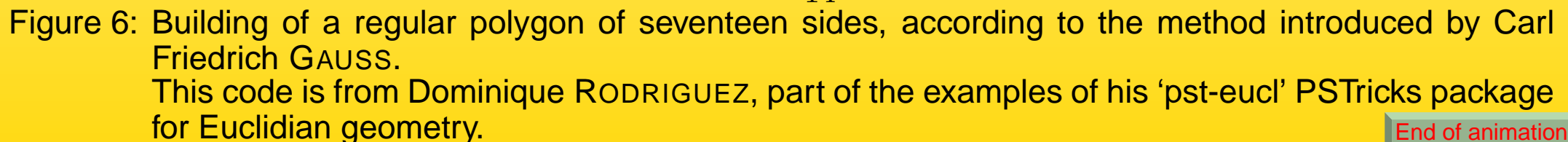
End of animation

21: Definition of the point **P\_3** on the original circle, by intersection of two circles



## Denis Girou

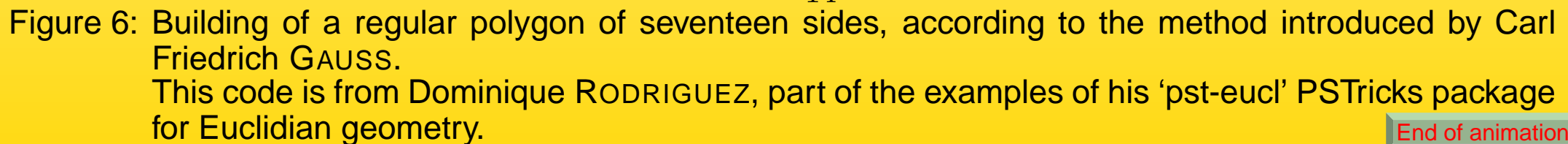
22: Definition of the point **P\_16** on the original circle, by orthogonal symmetry with the point **P\_3**



## Denis Girou

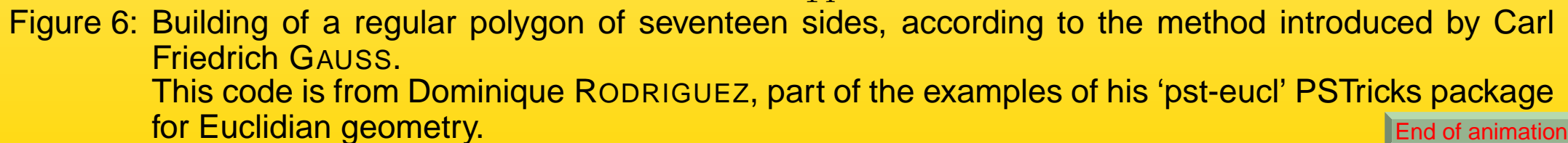


23: Definition of the point **P<sub>2</sub>** on the original circle, by intersection of two circles



## Denis Girou

24: Definition of the point **P\_17** on the original circle, by orthogonal symmetry with the point **P\_2**



## 11 – Building of a regular polygon of seventeen sides

25: Definition of the point  $P_7$  on the original circle, by intersection of two circles

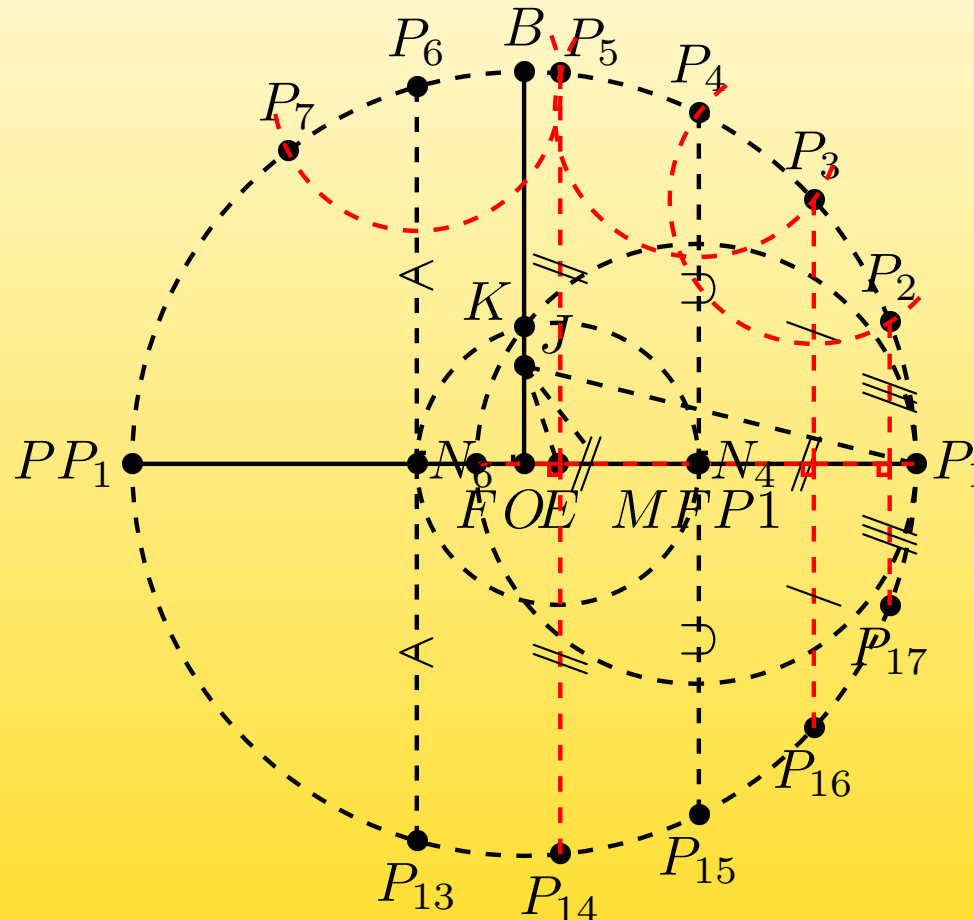
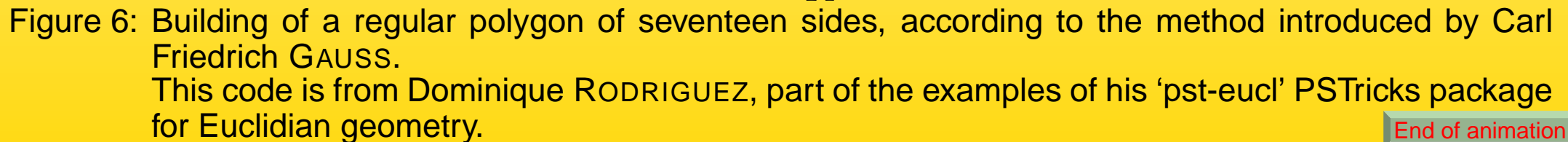


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

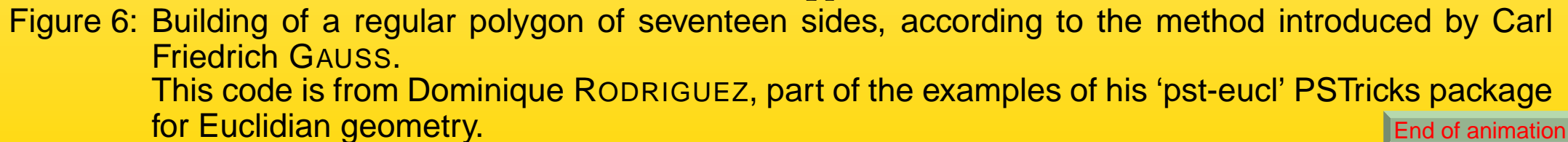
End of animation

26: Definition of the point **P\_12** on the original circle, by orthogonal symmetry with the point **P\_7**



## Seminar demonstration files – Animated graphics

27: Definition of the point **P\_8** on the original circle, by intersection of two circles



## Denis Girou

## 11 – Building of a regular polygon of seventeen sides

28: Definition of the point  $P_{11}$  on the original circle, by orthogonal symmetry with the point  $P_8$

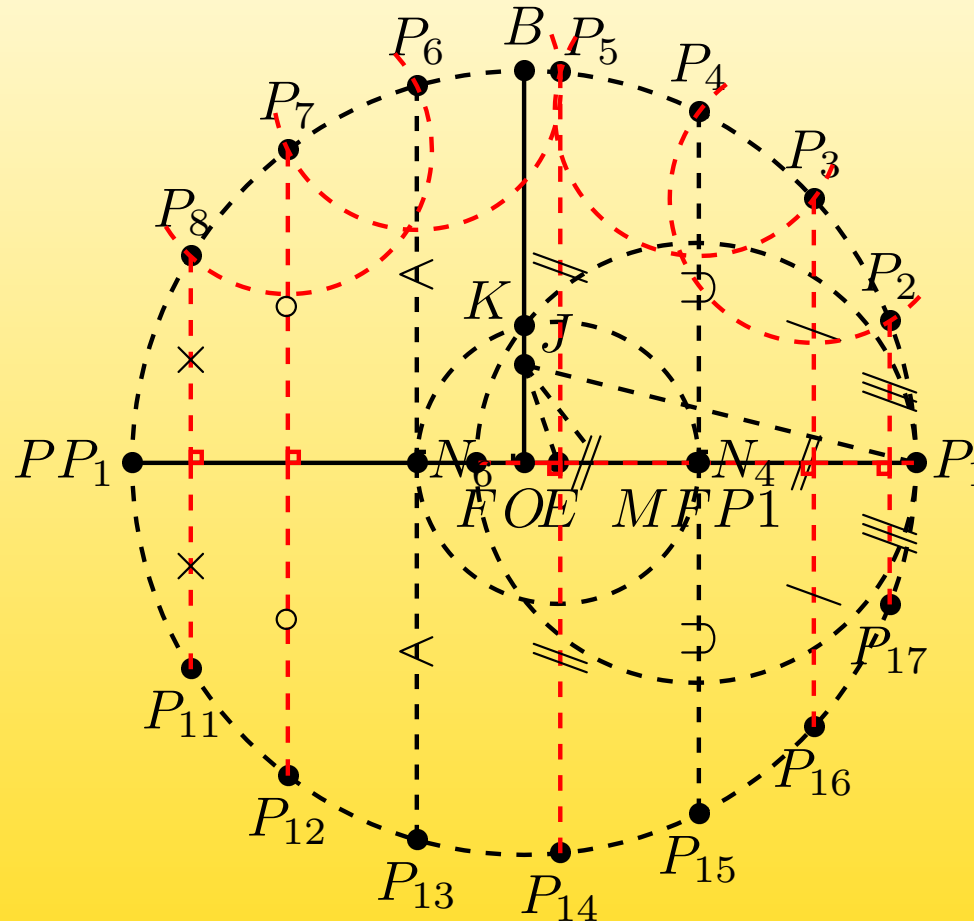


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

29: Definition of the point  $P_9$  on the original circle, by intersection of two circles

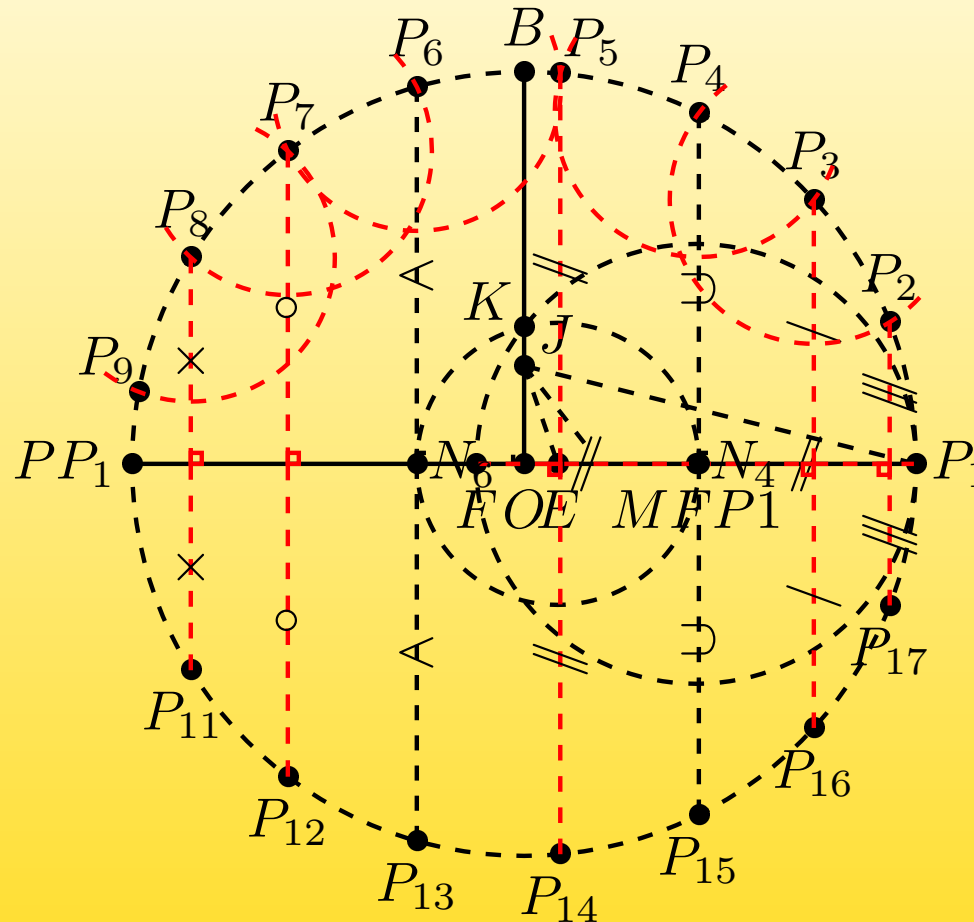


Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

## 11 – Building of a regular polygon of seventeen sides

30: Definition of the point  $P_{10}$  on the original circle, by orthogonal symmetry with the point  $P_9$

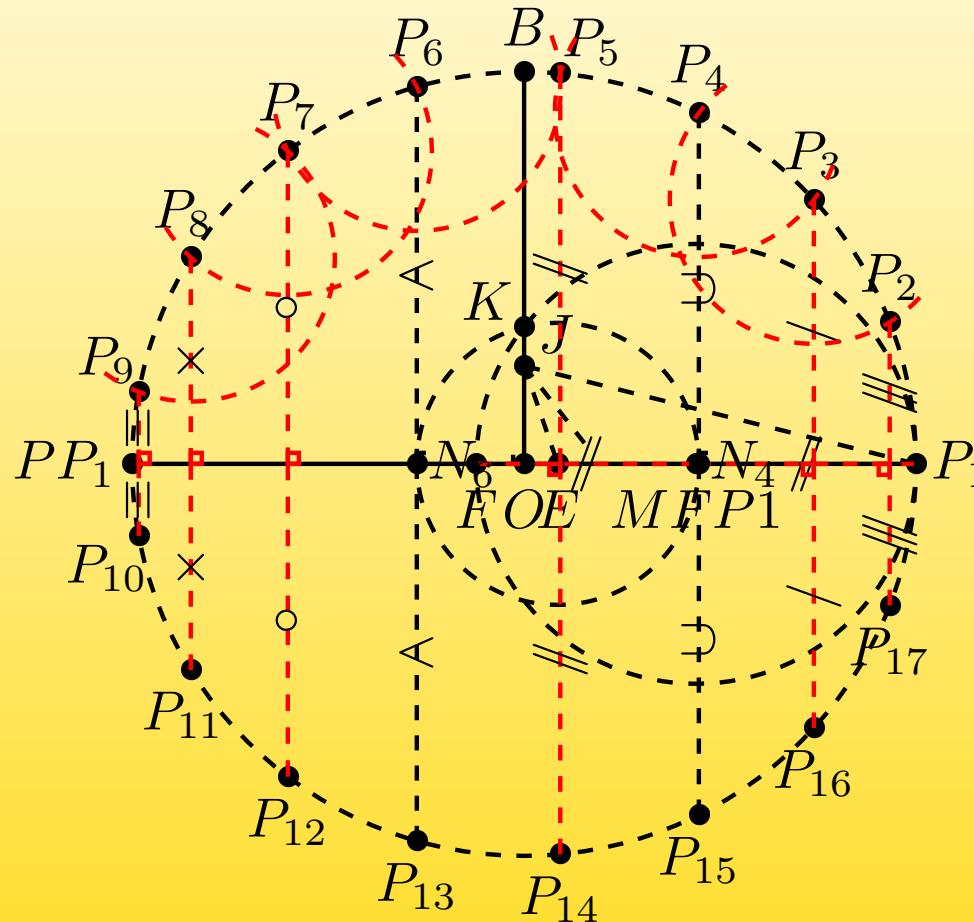


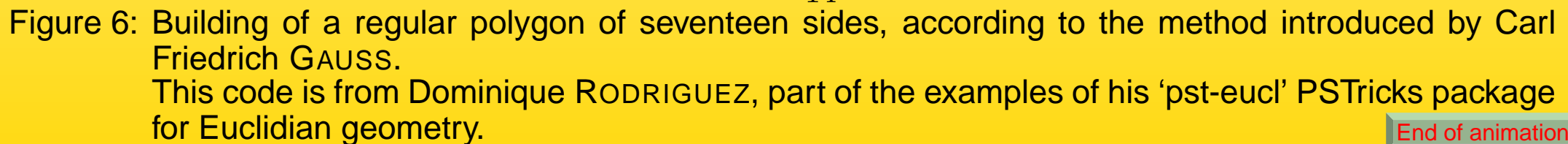
Figure 6: Building of a regular polygon of seventeen sides, according to the method introduced by Carl Friedrich GAUSS.

This code is from Dominique RODRIGUEZ, part of the examples of his 'pst-eucl' PSTricks package for Euclidian geometry.

End of animation

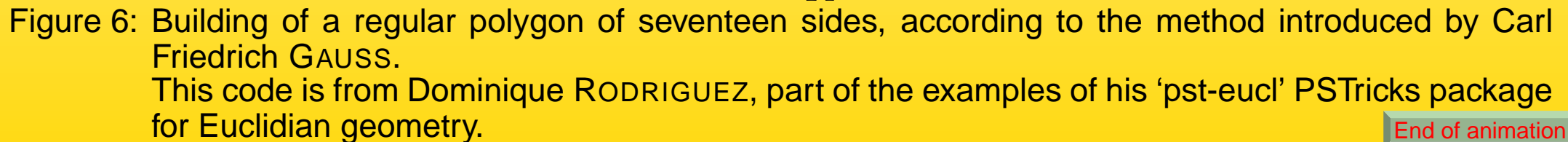


31: Side number 1 of the polygon



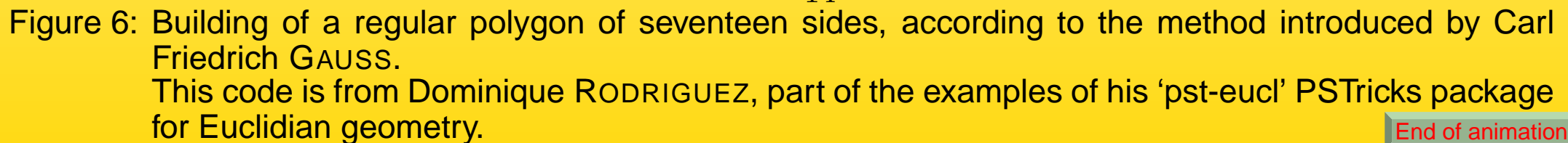
## Denis Girou

32: Side number 2 of the polygon



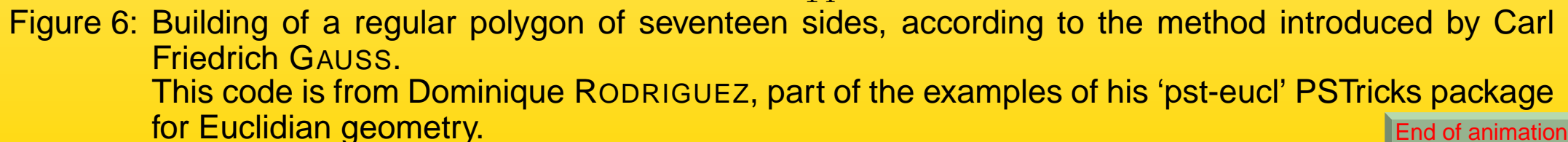
## Seminar demonstration files – Animated graphics

33: Side number 3 of the polygon



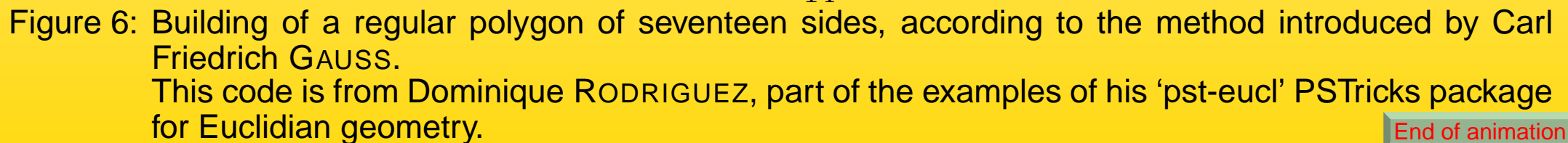
## Seminar demonstration files – Animated graphics

34: Side number 4 of the polygon



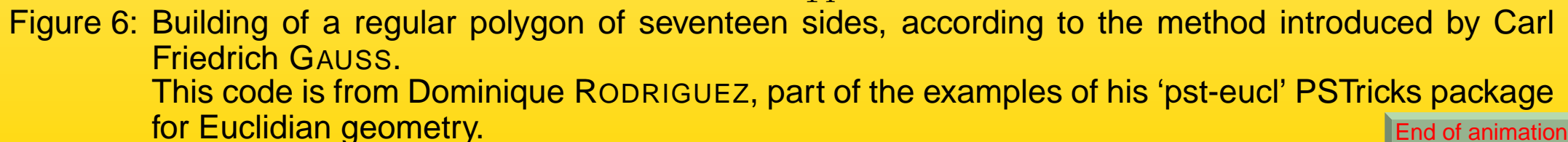
## Seminar demonstration files – Animated graphics

35: Side number 5 of the polygon



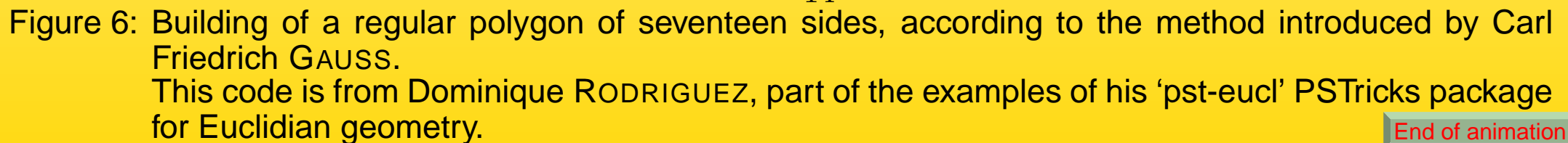
## Denis Girou

36: Side number 6 of the polygon



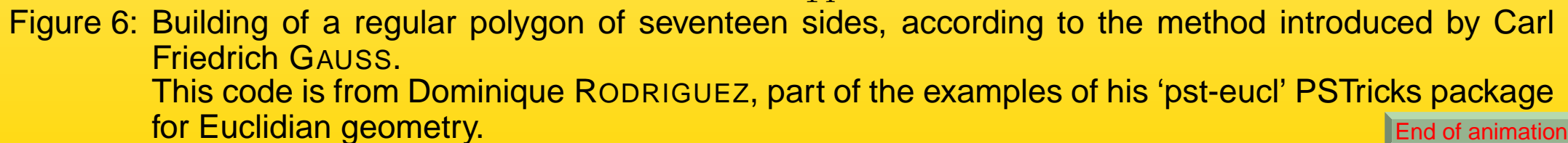
## Denis Girou

37: Side number 7 of the polygon



## Denis Girou

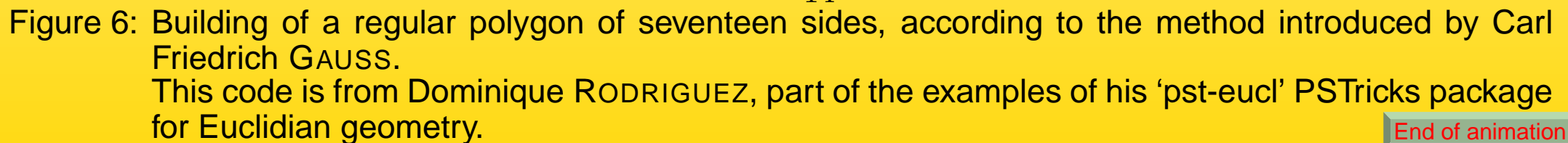
38: Side number 8 of the polygon



## Denis Girou

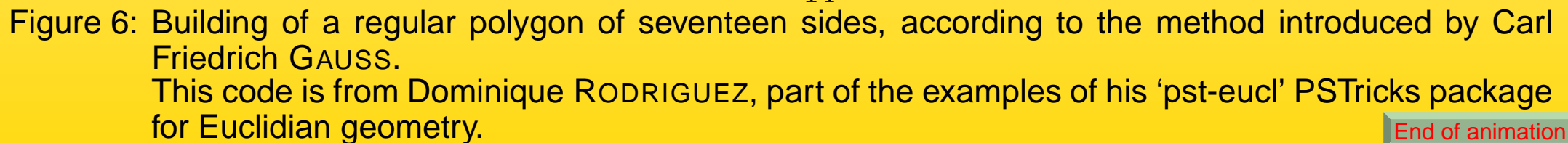


39: Side number 9 of the polygon



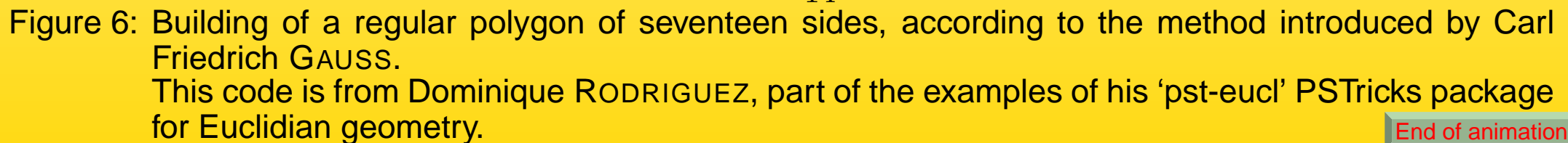
## Seminar demonstration files – Animated graphics

40: Side number 10 of the polygon



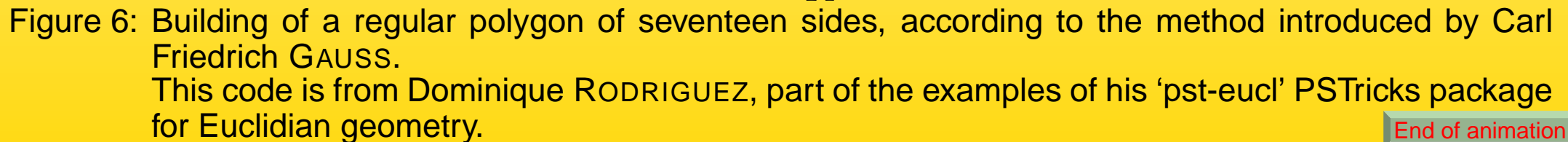
## Denis Girou

41: Side number 11 of the polygon



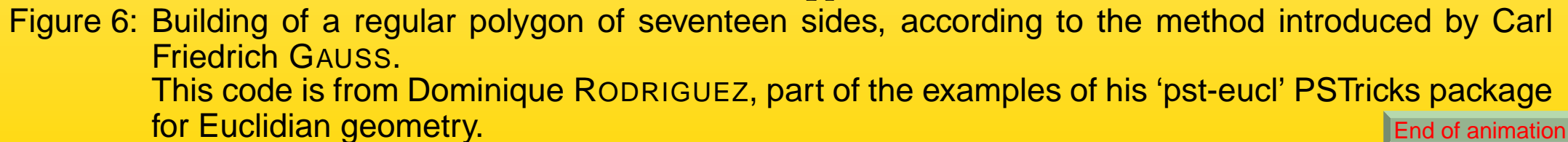
## Denis Girou

42: Side number 12 of the polygon



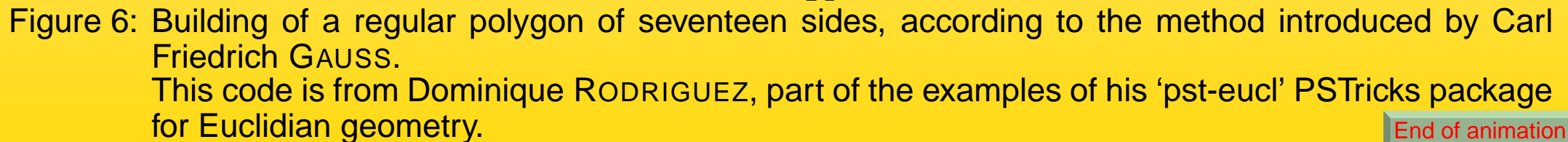
## Denis Girou

43: Side number 13 of the polygon



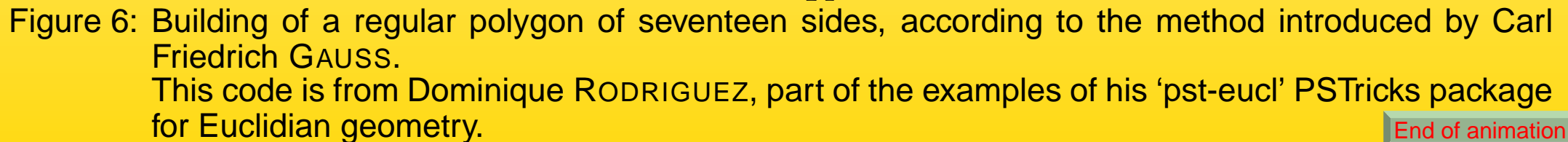
## Seminar demonstration files – Animated graphics

44: Side number 14 of the polygon



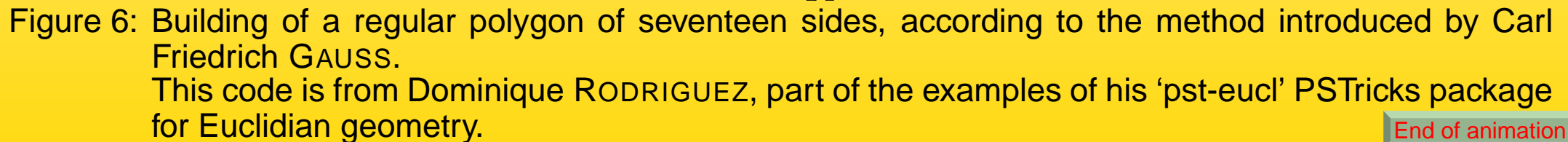
## Denis Girou

45: Side number 15 of the polygon



## Denis Girou

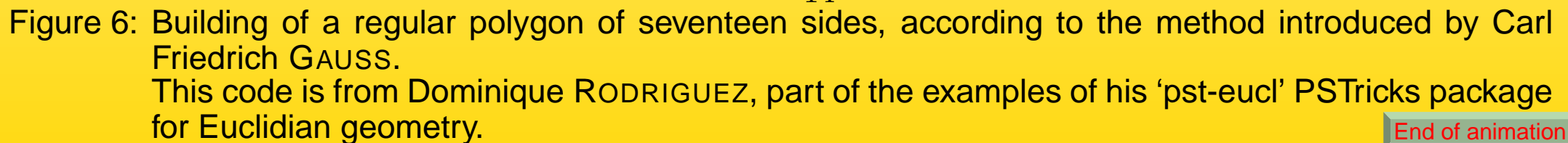
46: Side number 16 of the polygon



## Seminar demonstration files – Animated graphics



47: Side number 17 of the polygon



## Seminar demonstration files – Animated graphics

## 12 – External files inclusion



Figure 7: External files inclusion

End of animation

## 12 – External files inclusion

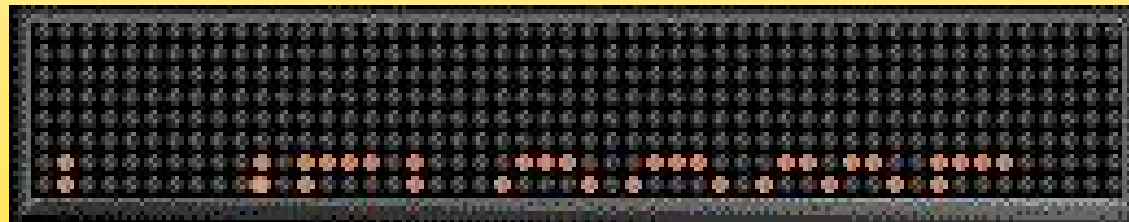


Figure 7: External files inclusion

End of animation

## 12 – External files inclusion

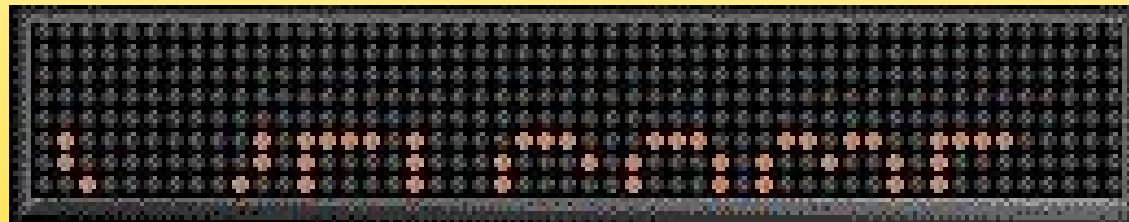


Figure 7: External files inclusion

End of animation

## 12 – External files inclusion

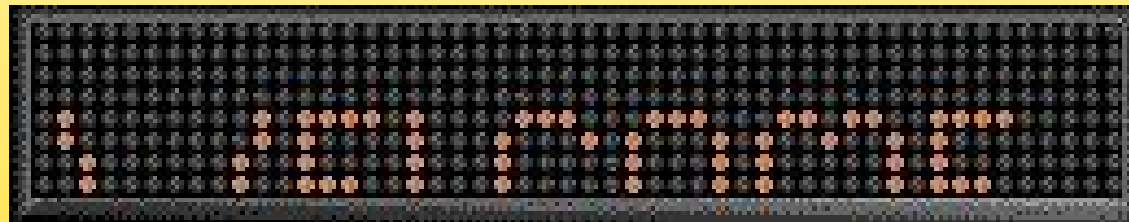


Figure 7: External files inclusion

End of animation

## 12 – External files inclusion

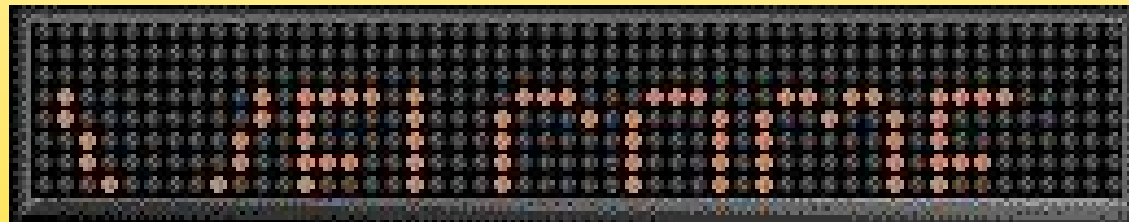


Figure 7: External files inclusion

End of animation

## 12 – External files inclusion



Figure 7: External files inclusion

End of animation

## 12 – External files inclusion



Figure 7: External files inclusion

End of animation



## 12 – External files inclusion



Figure 7: External files inclusion

End of animation

## 12 – External files inclusion

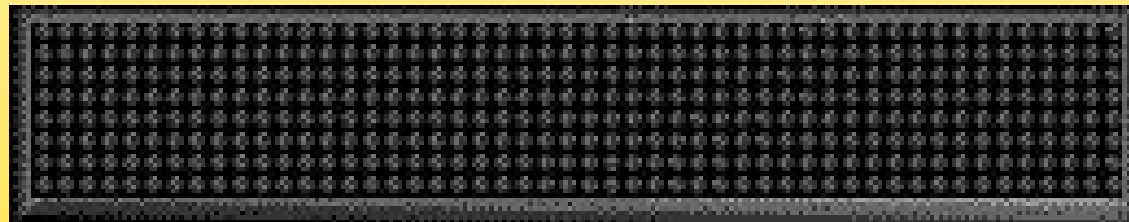


Figure 7: External files inclusion

End of animation

## 12 – External files inclusion



Figure 7: External files inclusion

End of animation

## 12 – External files inclusion

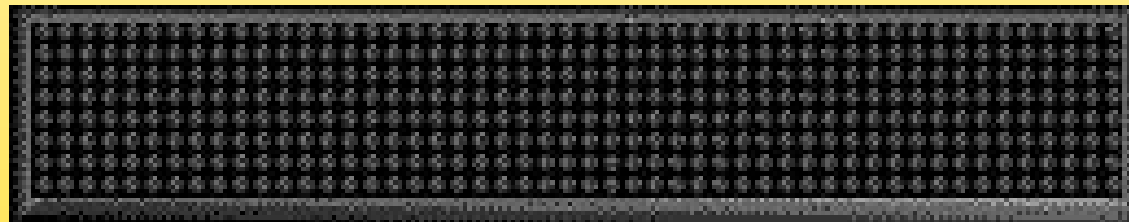


Figure 7: External files inclusion

End of animation

## 12 – External files inclusion



Figure 7: External files inclusion

End of animation

## 12 – External files inclusion



Figure 7: External files inclusion

End of animation

## 12 – External files inclusion



Figure 7: External files inclusion

End of animation

## 12 – External files inclusion

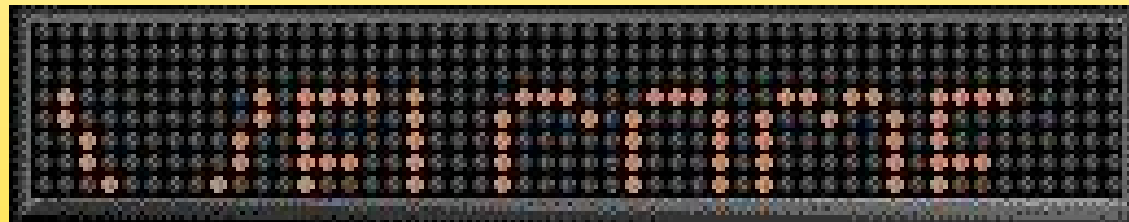


Figure 7: External files inclusion

End of animation



## 12 – External files inclusion

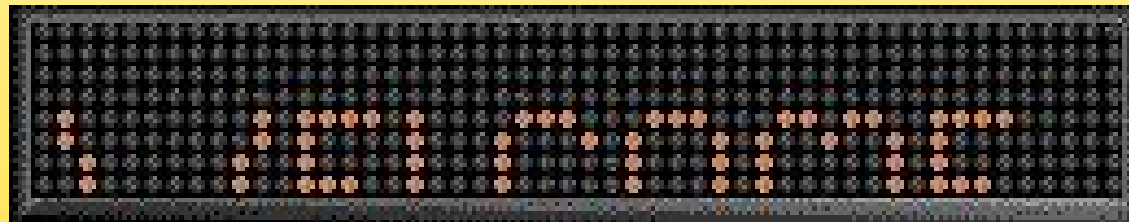


Figure 7: External files inclusion

End of animation

## 12 – External files inclusion

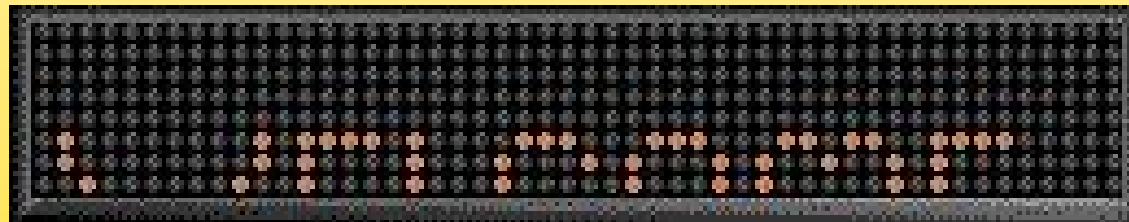


Figure 7: External files inclusion

End of animation

## 12 – External files inclusion

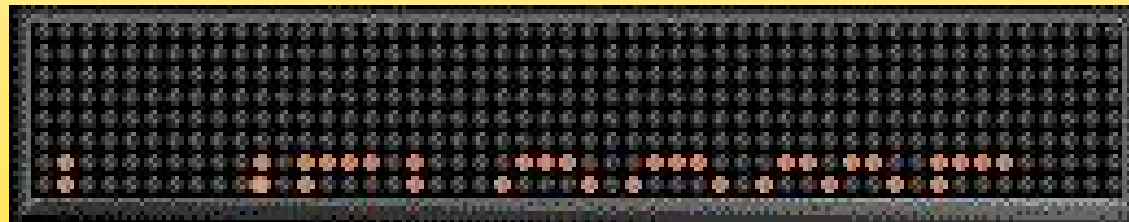


Figure 7: External files inclusion

End of animation

## 12 – External files inclusion



Figure 7: External files inclusion

End of animation

## 12 – External files inclusion

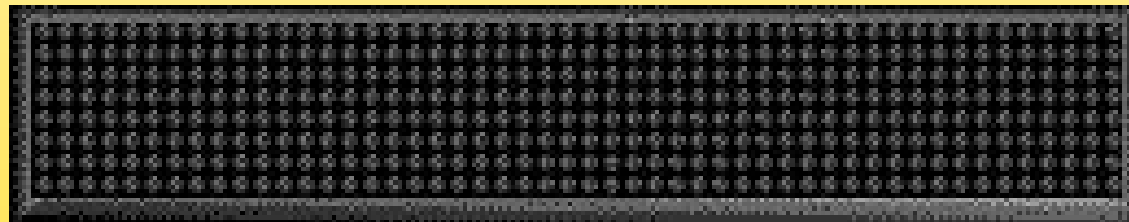


Figure 7: External files inclusion

End of animation