





TIL

was die Stunde von CSS geschlagen hat

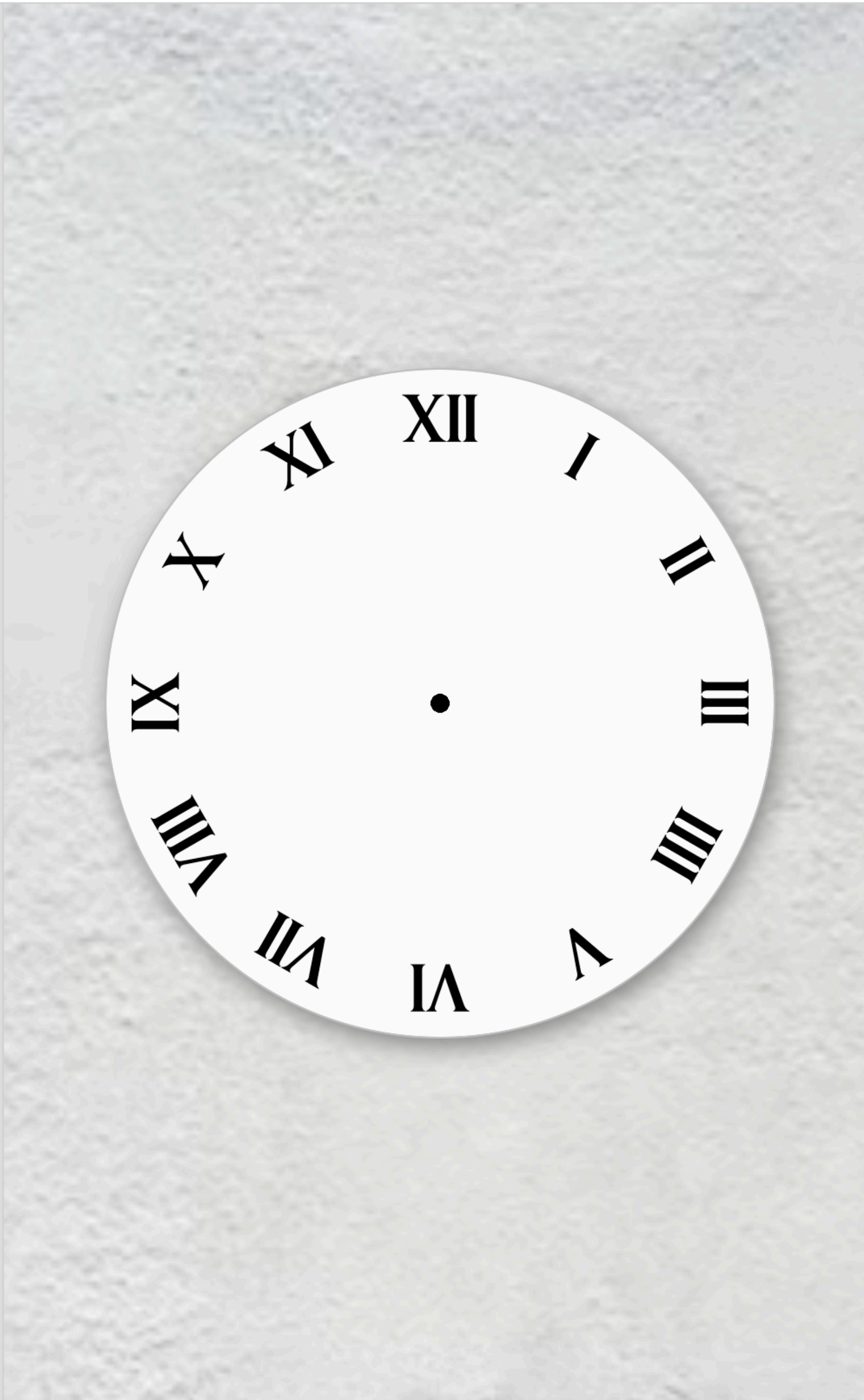
HTML



```
1 <ol class="clock" role="image">  
2   <li></li>  
3   <li></li>  
4   <li></li>  
5   <li></li>  
6   <li></li>  
7   <li></li>  
8   <li></li>  
9   <li></li>  
10  <li></li>  
11  <li></li>  
12  <li></li>  
13  <li></li>  
14 </ol>
```

* CSS (SCSS)

JS

```
1 // Look Ma, no JavaScript!
```





HTML  

```
1 <main lang="de">
2 <h1>Marathon, Olympische Spiele Moskau 1980</h1>
3 <ol>
4 <li>Waldemar Cierpinski <span>(DDR)</span></li>
5 <li>Gerard Nijboer <span>(IOC Niederlande)</span></li>
6 <li>Satymkul Dschumanasarow <span>(Sowjetunion)</span></li>
7 <li>Uladsimir Kotau <span>(Sowjetunion)</span></li>
```

* CSS  

```
1 h1 {
2   font: 400 2rem/1.3 'Fira Sans', sans-serif;
3 }
4
5 li {
6   font: 400 1.4rem/1.3 'Fira Sans', sans-serif;
7   margin-block: 0.7em;
8
9   &:nth-of-type(-n+3) {
10    list-style: medals;
11  }
12 }
13
14 @counter-style medals {
15   system: fixed;
16   symbols: '🥇' '🥈' '🥉';
17   suffix: ' ';
18 }
```

JS  

Marathon, Olympische Spiele Moskau 1980

- 🥇 Waldemar Cierpinski (DDR)
- 🥈 Gerard Nijboer (IOC Niederlande)
- 🥉 Satymkul Dschumanasarow (Sowjetunion)
- Uladsimir Kotau (Sowjetunion)
- Leonid Mossejew (Sowjetunion)
- Rodolfo Gómez (Mexiko)
- Dereje Nedi (Äthiopien)
- Massimo Magnani (IOC Italien)
- Karel Lismont (IOC Belgien)
- Robert de Castella (IOC Australien)

 HTML  

 CSS  

```
18 @counter-style upper-roman {
19   system: additive;
20   range: 1 3999;
21   additive-symbols:
22     1000 M,
23     900 CM,
24     500 D,
25     400 CD,
26     100 C,
27     90 XC,
28     50 L,
29     40 XL,
30     10 X,
31     9 IX,
32     5 V,
33     4 IV,
34     1 I;
35 }
36
37 @counter-style iiii-roman {
38   range: 1 4;
39   system: symbolic;
40   symbols: 'I';
41   fallback: upper-roman;
42 }
```

 JS  

I
II
III
IIII
V
VI
VII
VIII
IX
X
XI
XII
XIII
XIV
XV

Royal Observatory Greenwich



**THE SHEPHERD
24-HOUR GATE CLOCK**
This is one of the earliest chronometers ever made. It was made by John Shepherd in 1785. The first chronometer was made by John Harrison in 1759. The first chronometer was made by John Harrison in 1759. The first chronometer was made by John Harrison in 1759.

THE TIME BALL
The Time Ball was first used in 1829. It was used to signal the start of the day. It was used to signal the start of the day. It was used to signal the start of the day.



**ORDNANCE SURVEY
BENCH MARK**
The bench mark is a small metal plate. It is used to mark the height of a point. It is used to mark the height of a point. It is used to mark the height of a point.

**PUBLIC STANDARDS
OF LENGTH**
These standards are used to measure length. They are used to measure length. They are used to measure length.

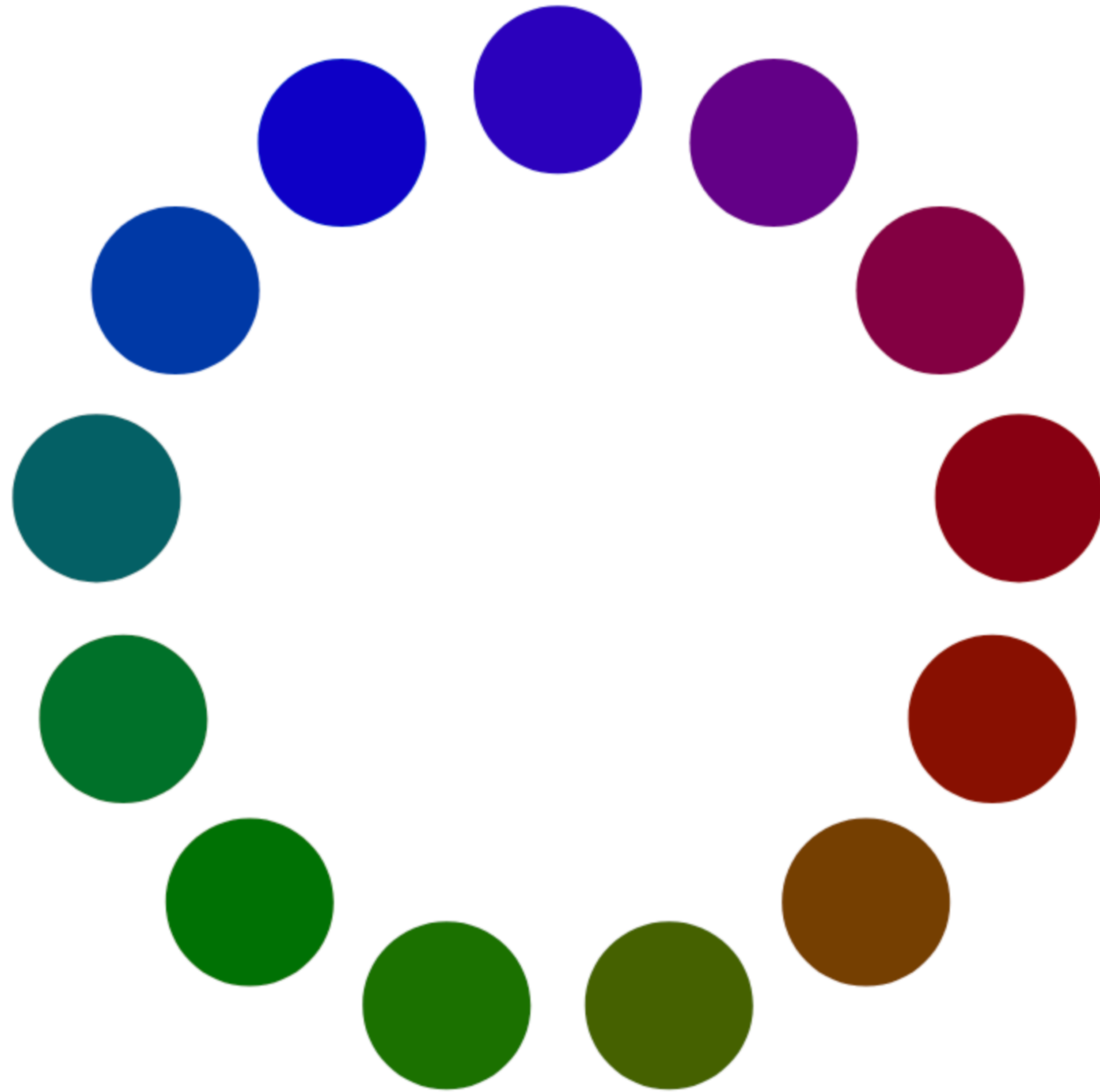


SHEPHERD PATENTEE

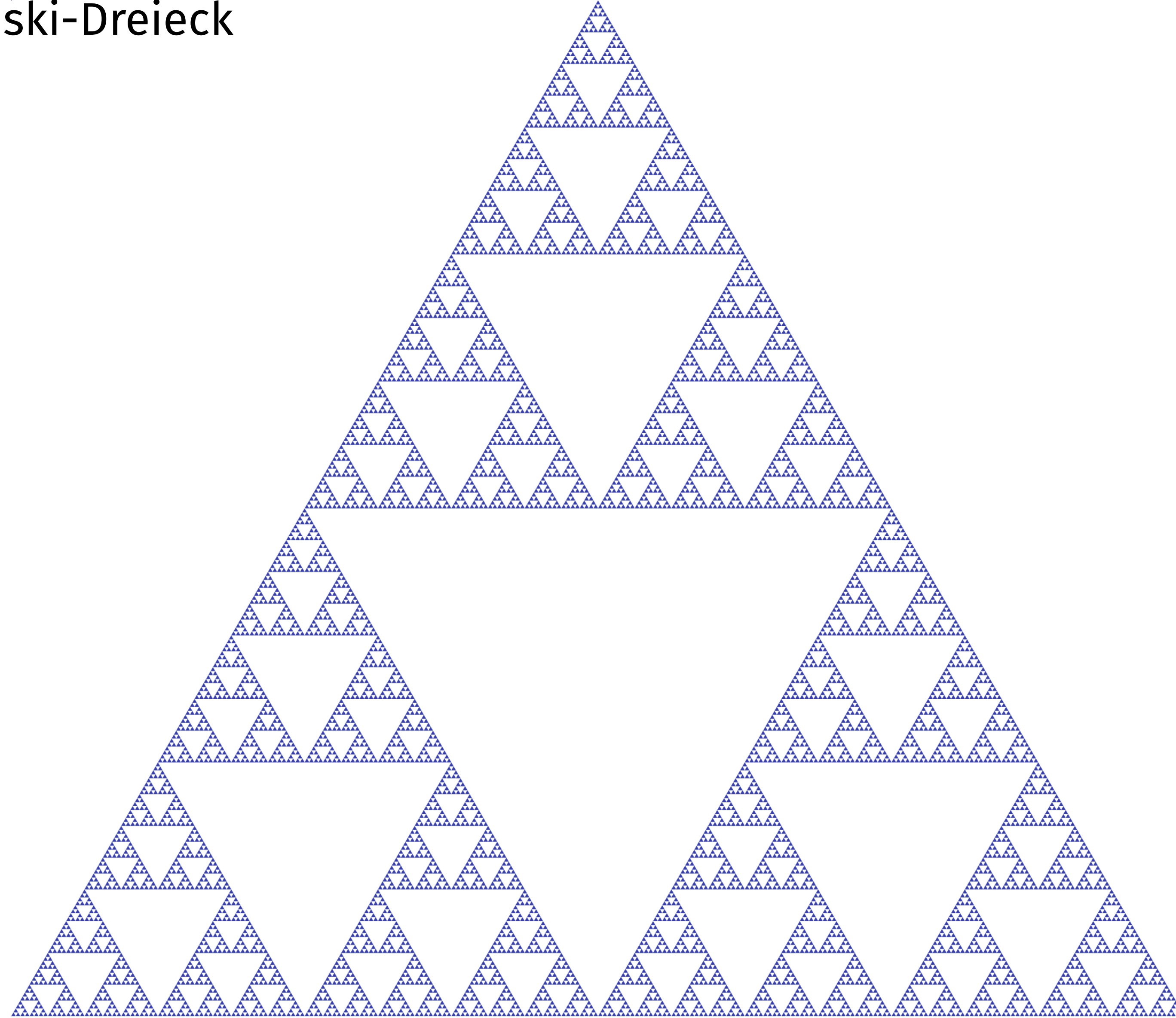
53 LEADENHALL ST LONDON

CALVA O-MAGNETIC CLOCK

13
prime



Sierpiński-Dreieck

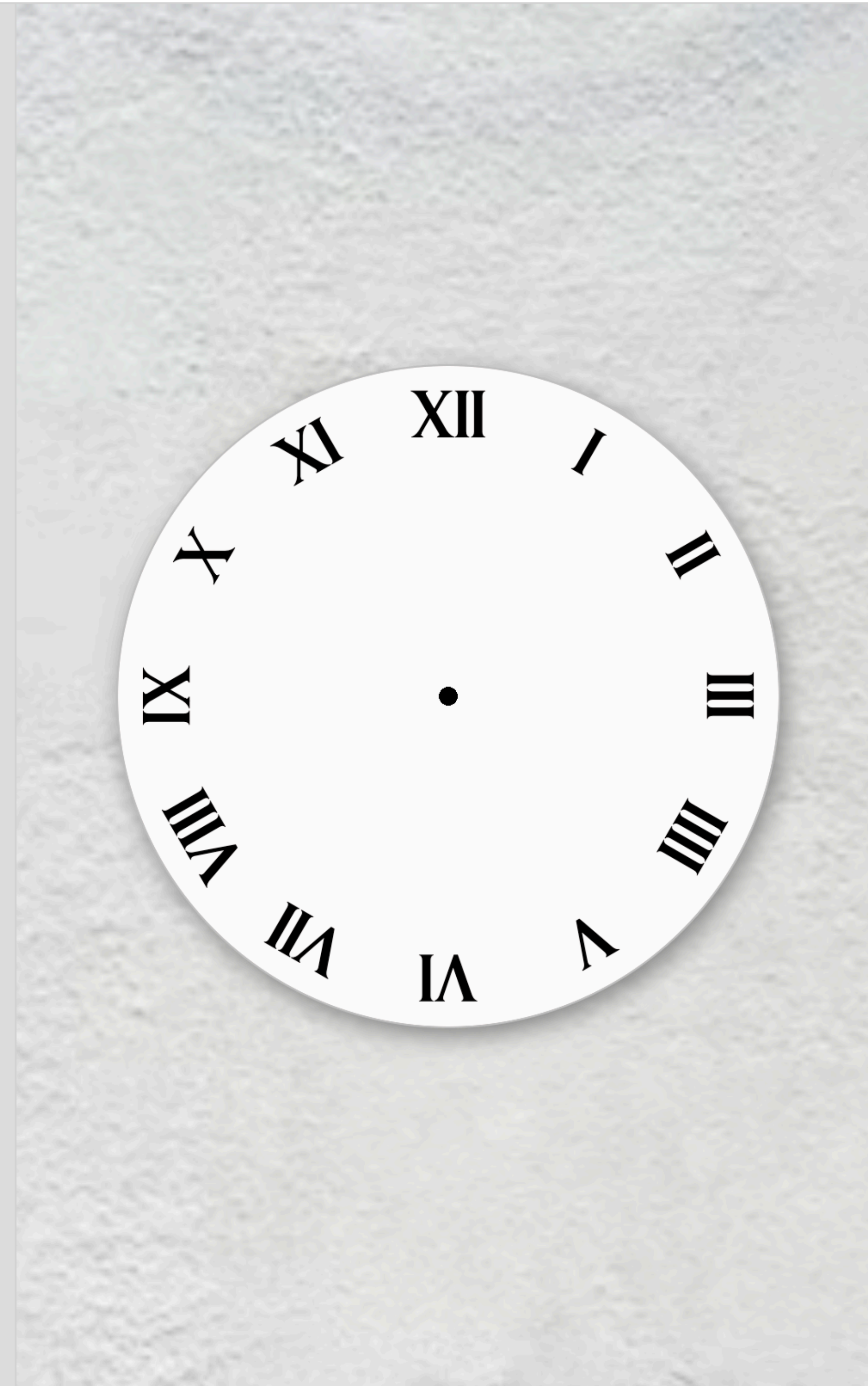


HTML

* CSS (SCSS)

```
39 li:nth-of-type(2) { --index: 2 }
40 li:nth-of-type(3) { --index: 3 }
41 and so on...
42
43 preprocessor for convenience:
44 */
45 @for $i from 1 through 12 {
46   &:has(li:nth-of-type(#{ $i })) { --count: #{ $i } }
47   & li:nth-of-type(#{ $i }) { --index: #{ $i } }
48 }
49
50 & li {
51   font: 10cqw/1 'Alchemist', serif;
52   font-variant-numeric: proportional-nums lining-nums;
53   grid-column: 1;
54   grid-row: 1;
55   place-self: center;
56   text-align: center;
57   height: 100cqw;
58   padding: 3cqw;
59   --angle: calc(var(--index) / var(--count) * 1turn);
60   rotate: var(--angle);
61
62 &::marker {
63   content: counter(list-item, var(--style));
```

JS



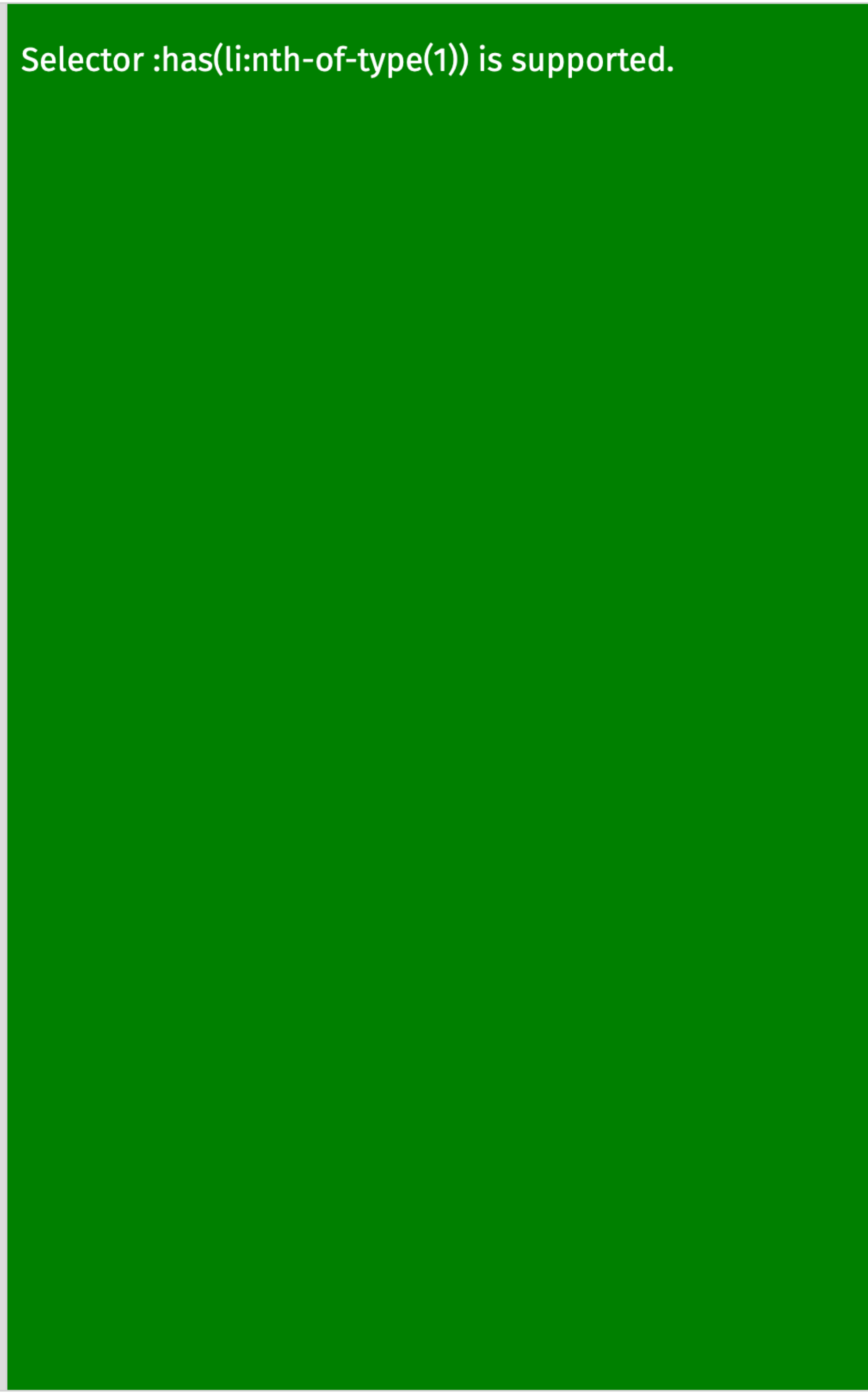
HTML

* CSS

```
1 @supports (selector(:has(li:nth-of-type(1)))) {
2   html { background: green }
3   #not { display: none }
4 }
5
6 @supports not (selector(:has(li:nth-of-type(1)))) {
7   html { background: red }
8 }
9
10 html {
11   color: white;
12   font: 1.2em/1.4 Fira Sans;
13 }
```

JS

```
1 // :has() polyfill
2 if (!CSS.supports('selector(&:has(li:nth-of-type(1)))')) {
3   const setCount = (element) => {
4     element.style.setProperty('--count', element.childElementCount);
5   };
6
7   const countObserver = new MutationObserver(setCount);
8
9   for (let element of document.querySelectorAll('.clock')) {
10     setCount(element);
11     countObserver.observe(element, {childList: true});
12   }
13 }
```



HTML CSS (SCSS) JS

```
1 // :has() polyfill
2 if (!CSS.supports('selector(&:has(li:nth-of-type(1)))')) {
3   const setCount = (element) => {
4     element.style.setProperty('--count', element.childElementCount);
5   };
6
7   const countObserver = new MutationObserver(setCount);
8
9   for (let element of document.querySelectorAll('.clock')) {
10    setCount(element);
11    countObserver.observe(element, {childList: true});
12  }
13 }
```

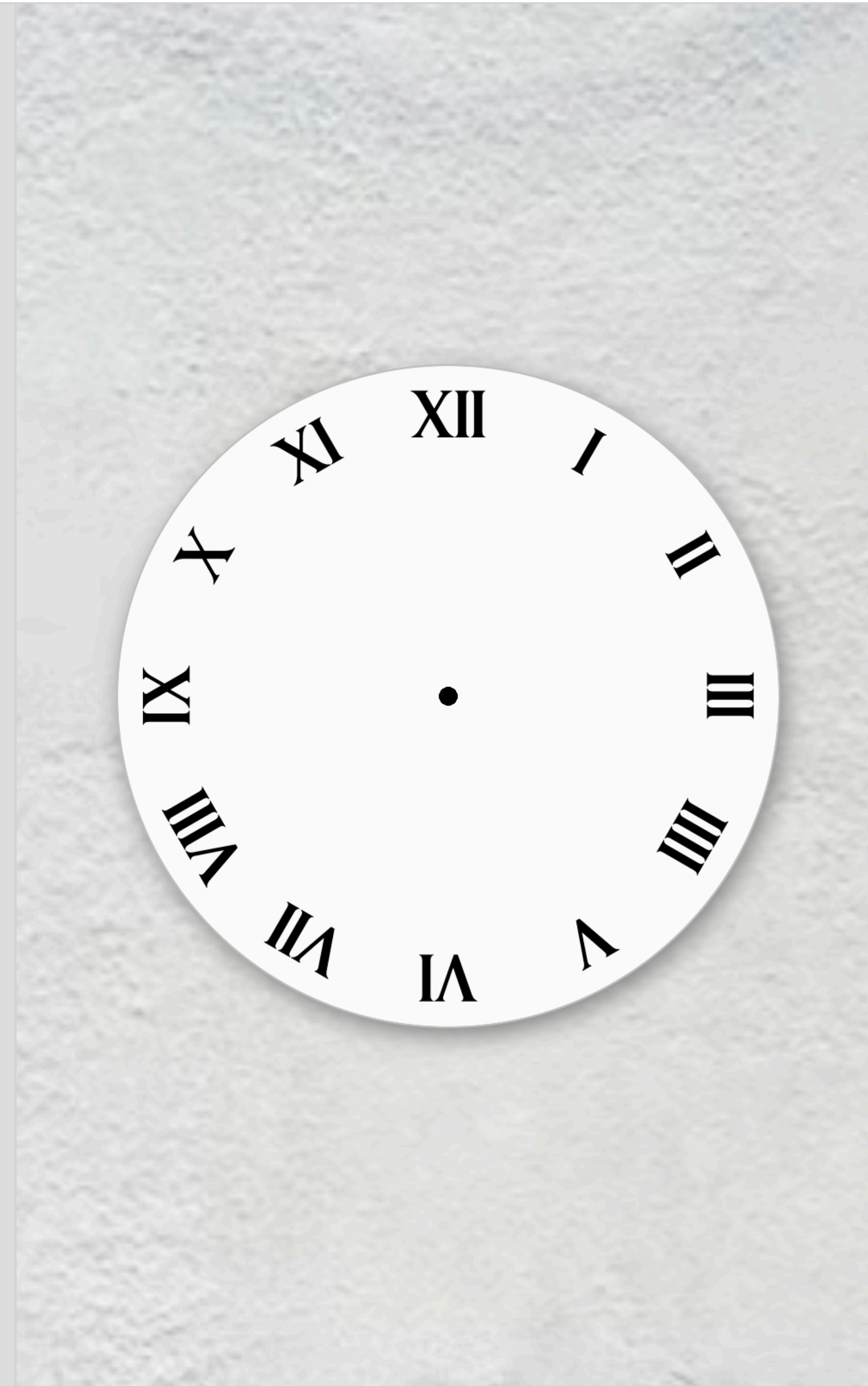


















Foto: Black Chitsulo auf Unsplash



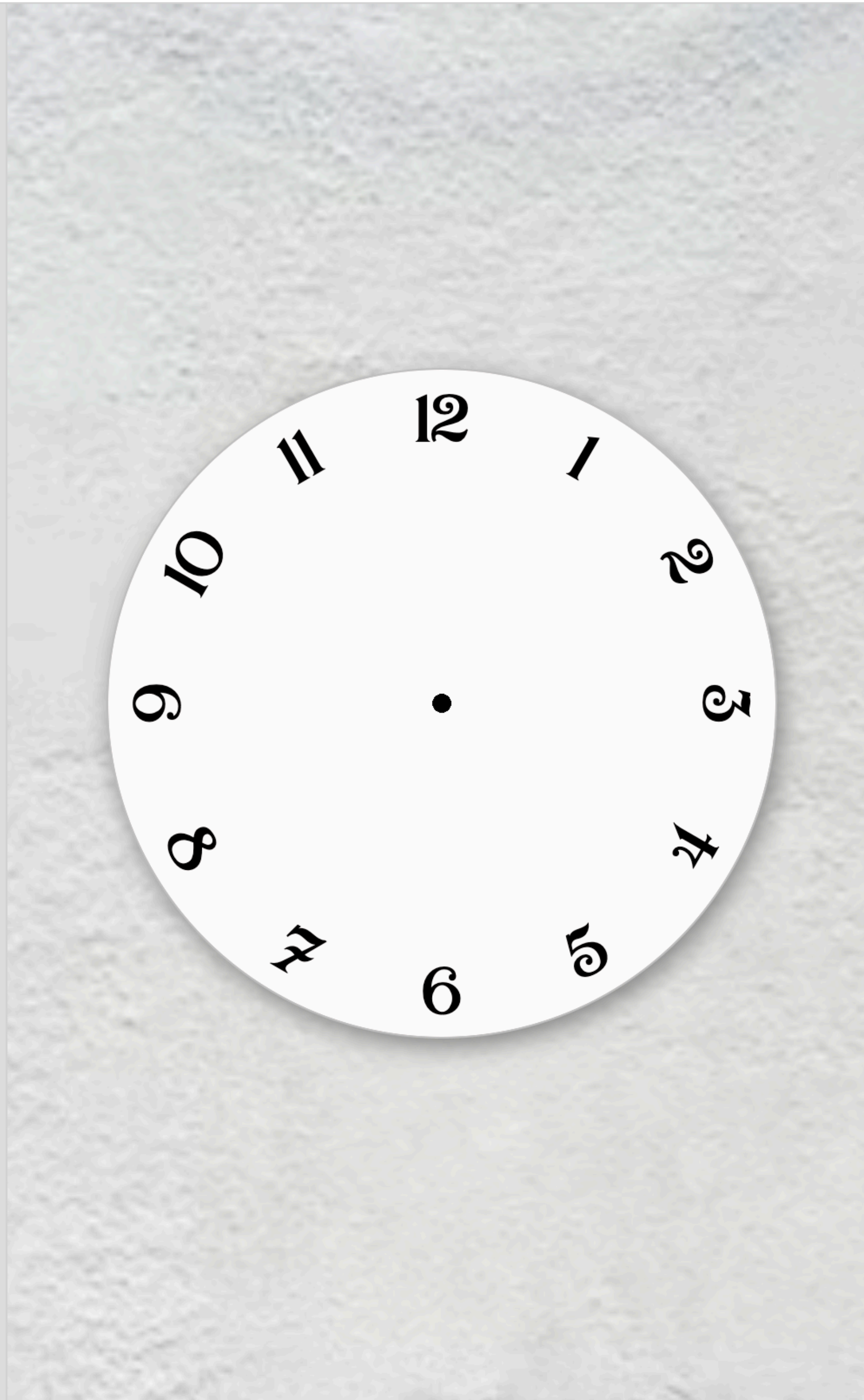
Foto: Jiyeon Park auf Unsplash

HTML

* CSS (SCSS)

```
29
30 & li {
31   font: 10cqw/1 'Alchemist', serif;
32   font-feature-settings: 'ss01';
33   font-variant-numeric: proportional-nums lining-nums;
34   padding: 3cqw;
35   grid-column: 1;
36   grid-row: 1;
37   place-self: center;
38   text-align: center;
39   height: 100cqw;
40   --angle: calc(var(--index) / var(--count) * 1turn);
41   rotate: var(--angle);
42
43 &::before {
44   content: counter(list-item);
45   display: block;
46 }
47
48 &:nth-of-type(n+4):nth-of-type(-n+8)::before {
49   rotate: 0.5turn;
50   margin-top: -1.8cqw; /* magic number, depending on used font */
51 }
52 }
53 }
```

JS

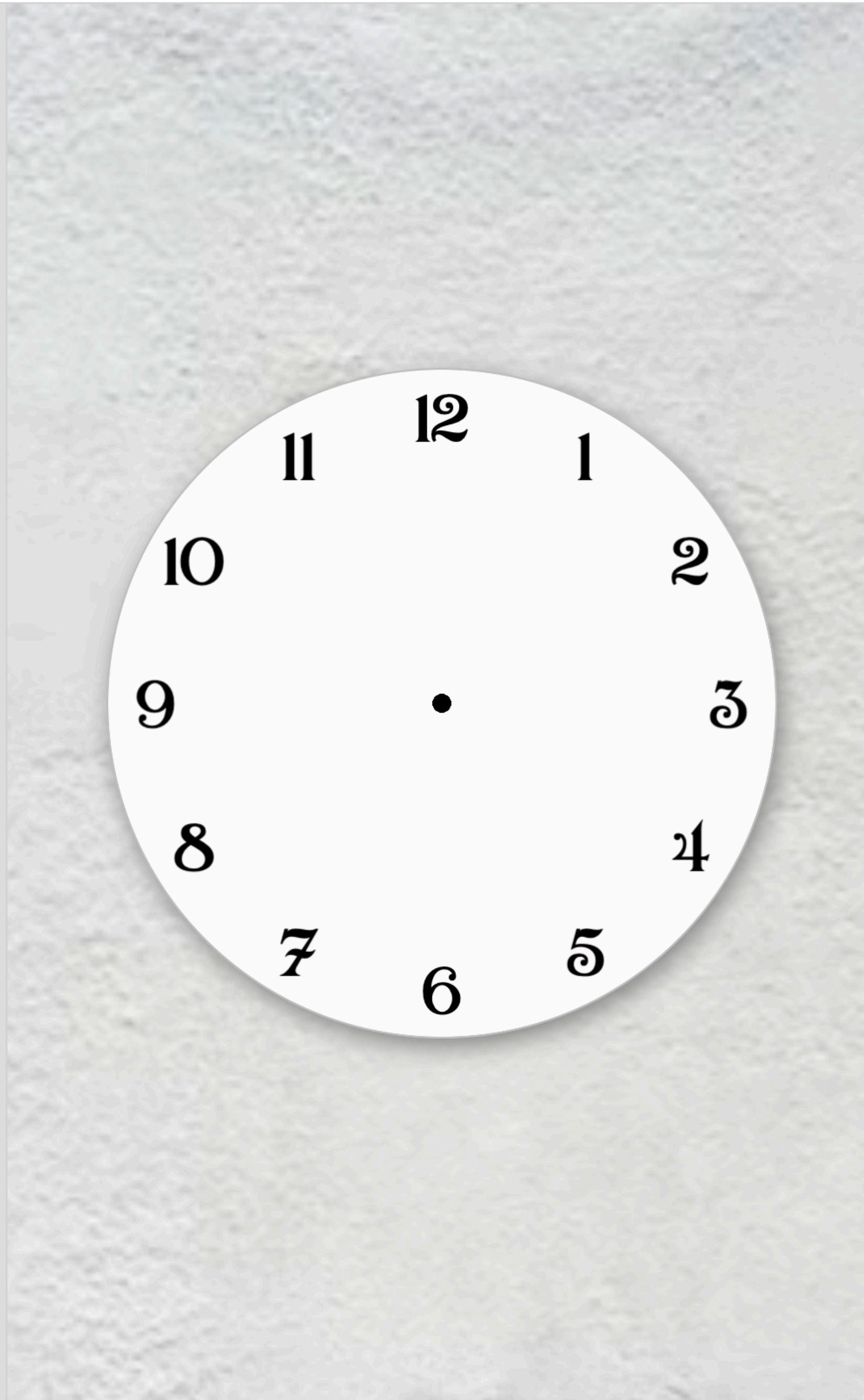


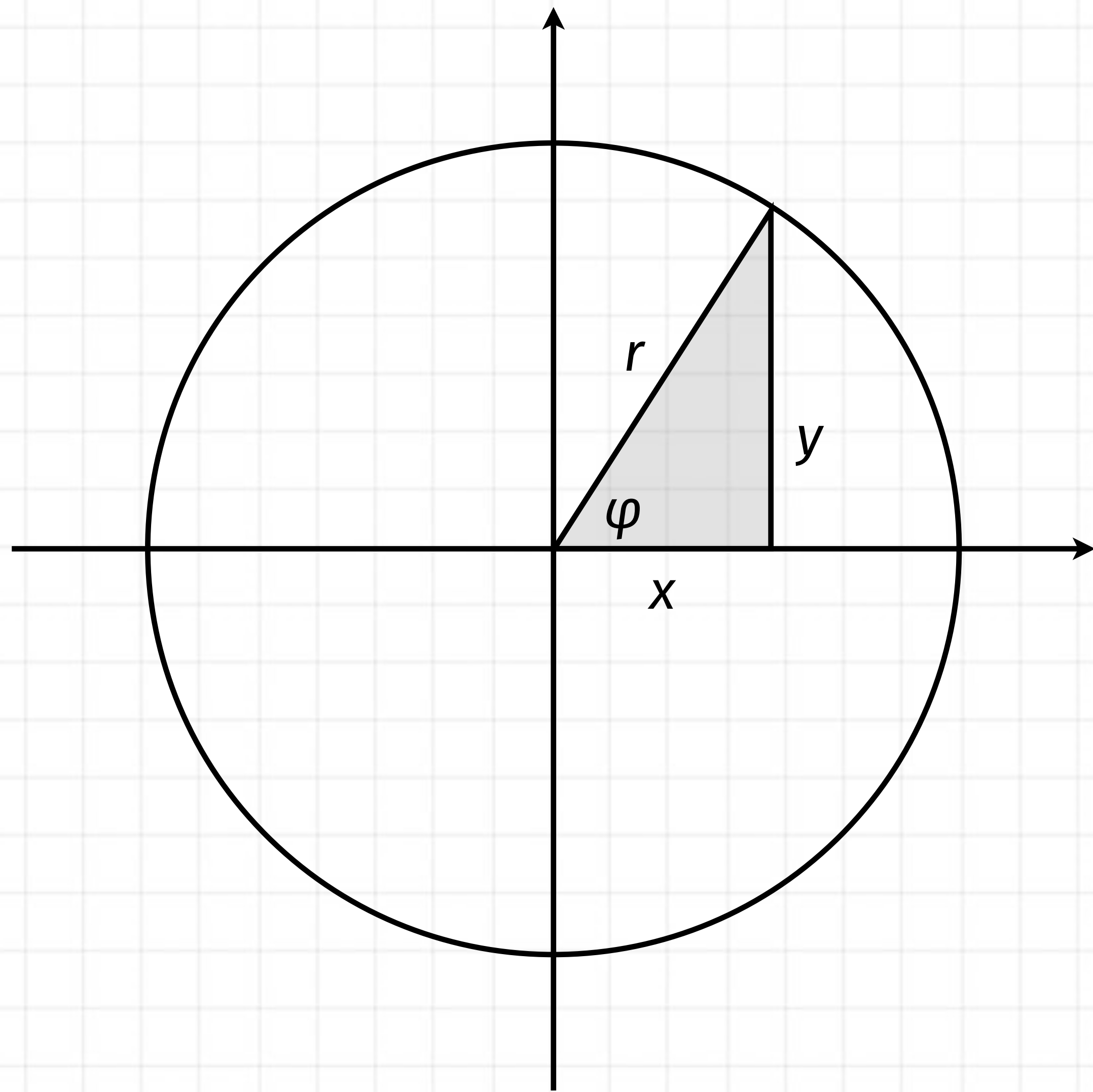
HTML

* CSS (SCSS)

```
29
30 & li {
31   font: 10cqw/1 'Alchemist', serif;
32   font-feature-settings: 'ss01';
33   font-variant-numeric: proportional-nums lining-nums;
34   grid-column: 1;
35   grid-row: 1;
36   place-self: center;
37   text-align: center;
38   height: 100cqw;
39   --angle: calc(var(--index) / var(--count) * 1turn);
40   rotate: var(--angle);
41
42 &::before {
43   content: counter(list-item);
44   display: block;
45   rotate: calc(-1 * var(--angle));
46   padding-block: 3cqw 1.2cqw; /* magic number, depending on used font */
47 }
48 }
49 }
```

JS





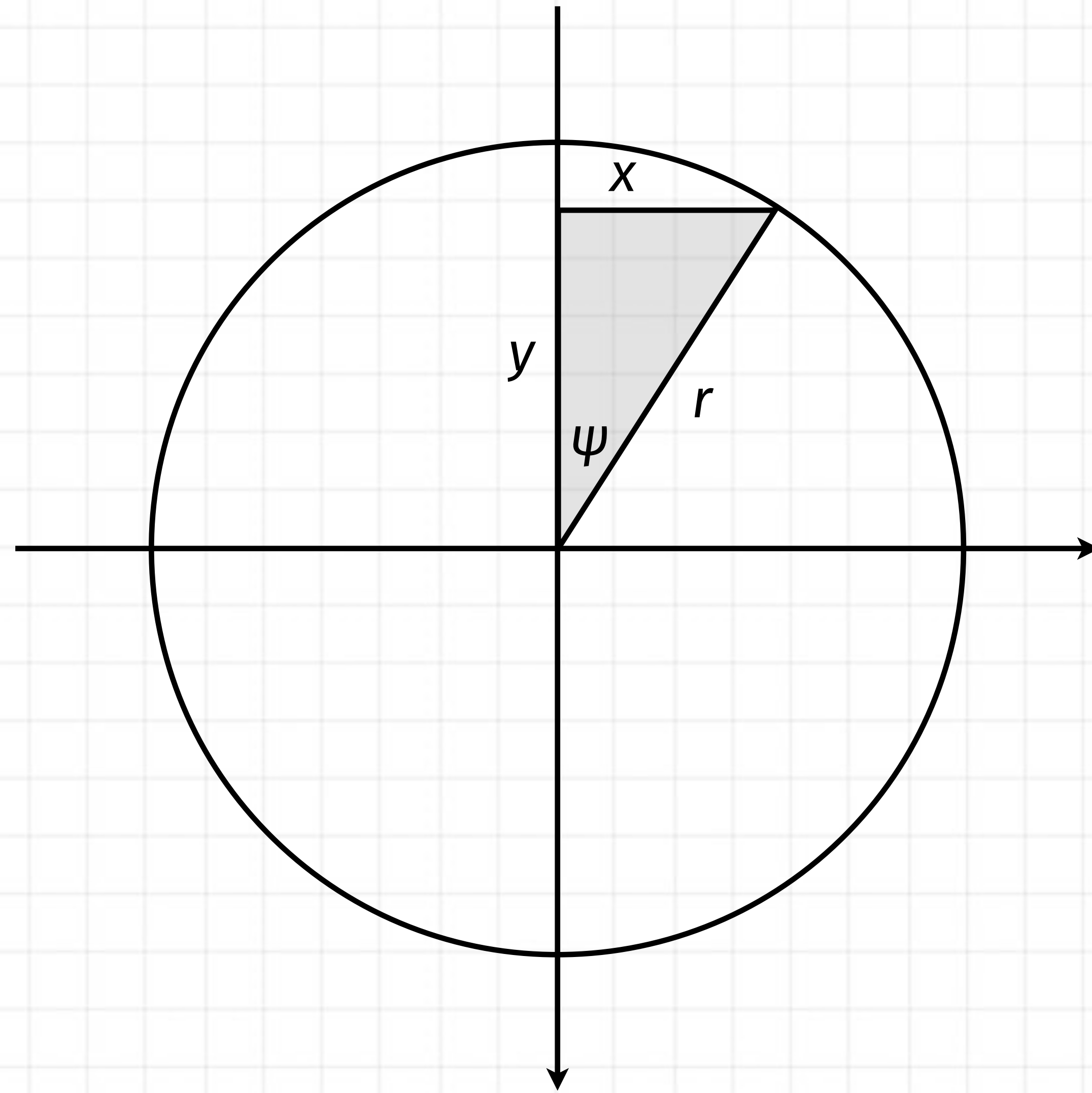
$$\sin \varphi = y / r$$

$$\cos \varphi = x / r$$

$$\tan \varphi = y / x$$

$$y = r \sin \varphi$$

$$x = r \cos \varphi$$



$$x = r \sin \psi$$

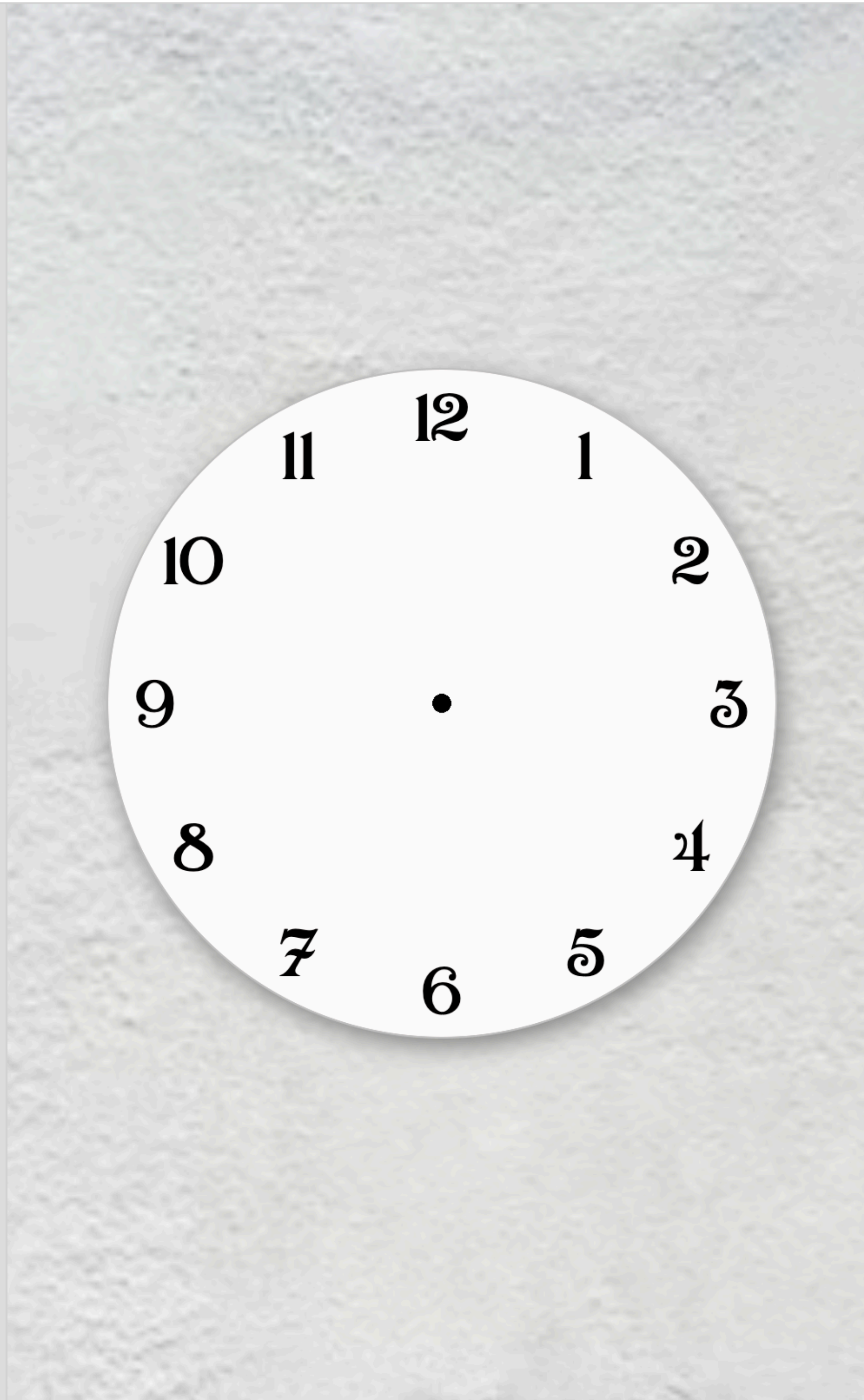
$$y = -r \cos \psi$$

HTML

* CSS (SCSS)

```
29
30 & li {
31   font: 10cqw/1 'Alchemist', 'Bodoni 72', serif;
32   font-feature-settings: 'ss01';
33   font-variant-numeric: proportional-nums lining-nums;
34   grid-column: 1;
35   grid-row: 1;
36   place-self: center;
37   text-align: center;
38   --radius: 43cqw;
39   --angle: calc(var(--index) / var(--count) * 1turn);
40   translate:
41     calc(var(--radius) * sin(var(--angle)))
42     calc(var(--radius) * -1 * cos(var(--angle)));
43
44 &::before {
45   content: counter(list-item);
46   display: block;
47   padding-block: 3cqw 1.2cqw; /* magic number, depending on used font */
48 }
49 }
50 }
```

JS



HTML

* CSS (SCSS)

```
1 div {
2   background: white;
3   box-shadow: 2px 2px 20px darkgray;
4   height: min(80vh, 120vw);
5   aspect-ratio: 1/sqrt(2); /* `sqrt()` not supported in Chromium yet */
6 }
7
8 body {
9   box-sizing: border-box;
10  margin: 0;
11  padding: 1em;
12  height: 100vh;
13  background: url(https://images.unsplash.com/photo-1611072337226-1140ab367200?auto=format&fit=crop&q=80&w=1000&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8fA%3D%3D) center/cover;
   /* background image by Simon Berger on Unsplash */
14  display: grid;
15  place-items: center;
16 }
17
18 html {
19  filter: grayscale(70%);
20 }
21
```

JS



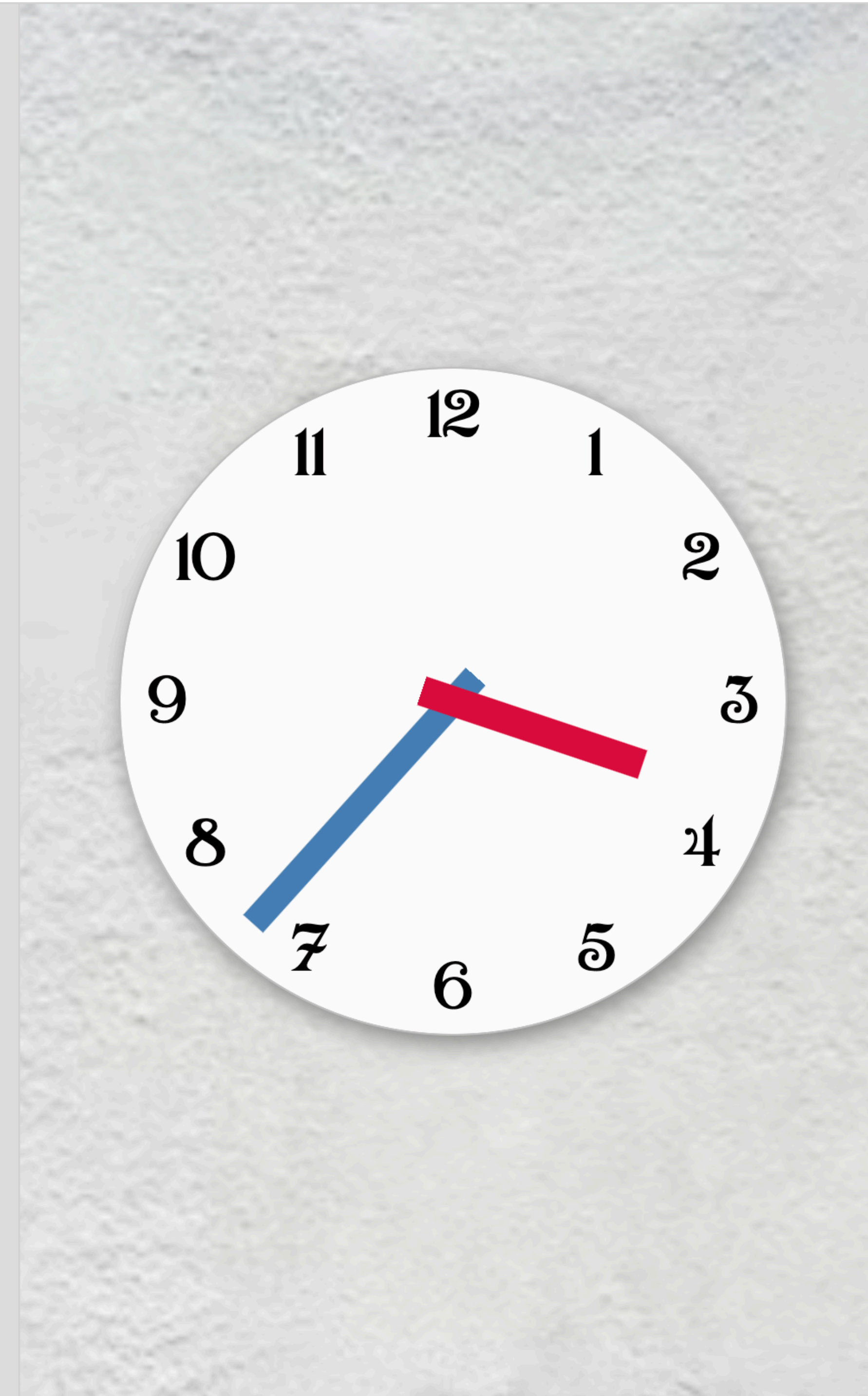
HTML

CSS (SCSS)

```
33 &::before {
34   background: linear-gradient(
35     transparent 0 5%,
36     steelblue 0 55%,
37     transparent 0
38   );
39   width: 4cqw;
40   rotate: calc(var(--partOfHour) * 1turn);
41   transition: rotate linear calc(var(--refresh, 0) * 1ms/2);
42 }
```

JS

```
1 const clockElement = document.querySelector('.clock');
2 const refresh = 500; // ms
3 if (refresh > 750) {
4   clockElement.style.setProperty('--refresh', refresh);
5 }
6
7 clockElement.setTime = function() {
8   window.requestAnimationFrame(() => {
9     const now = new Date();
10    clockElement.style.setProperty('--hours', now.getHours());
11    clockElement.style.setProperty('--minutes', now.getMinutes());
12    clockElement.style.setProperty('--seconds', now.getSeconds() +
now.getMilliseconds()/1000);
13  });
14 }
```



HTML

* CSS (SCSS)

```
33 &::after {
34   background: linear-gradient(
35     transparent 0 5%,
36     steelblue 0 55%,
37     transparent 0
38   );
39   width: 4cqw;
40   rotate: calc(var(--partOfHour) * 1turn);
41   transition: rotate linear calc(var(--refresh, 0) * 1ms/2);
42 }
```

JS

```
1 const clockElement = document.querySelector('.clock');
2 const refresh = 500; // ms
3 if (refresh > 750) {
4   clockElement.style.setProperty('--refresh', refresh);
5 }
6
7 clockElement.setTime = function() {
8   window.requestAnimationFrame(() => {
9     const now = new Date();
10    clockElement.style.setProperty('--hours', now.getHours());
11    clockElement.style.setProperty('--minutes', now.getMinutes());
12    clockElement.style.setProperty('--seconds', now.getSeconds() +
now.getMilliseconds()/1000);
13  });
14 }
```



```
HTML  
1 <figure>  
2 <ol data-timezone="America/New_York" class="clock" role="image"></ol>  
16 <figcaption>  
17 Manhattan  
18 </figcaption>  
19 </figure>  
20 <figure>  
21 <ol data-timezone="Europe/Berlin" class="clock" role="image"></ol>  
35 <figcaption>  
36 Berlin  
37 </figcaption>
```

```
* CSS (SCSS)
```

```
JS  
9 clockElement.setTime = function() {  
10 window.requestAnimationFrame(() => {  
11 const now = new Date();  
12 [h, m, s] = Intl.DateTimeFormat('de-DE', {  
13 hour: "numeric",  
14 minute: "numeric",  
15 second: "numeric",  
16 timeZone: clockElement.dataset.timezone,  
17 }).format(now).split(':').map(x => parseInt(x));  
18 clockElement.style.setProperty('--hours', h);  
19 clockElement.style.setProperty('--minutes', m);  
20 clockElement.style.setProperty('--seconds', s);  
21 });  
22 }
```



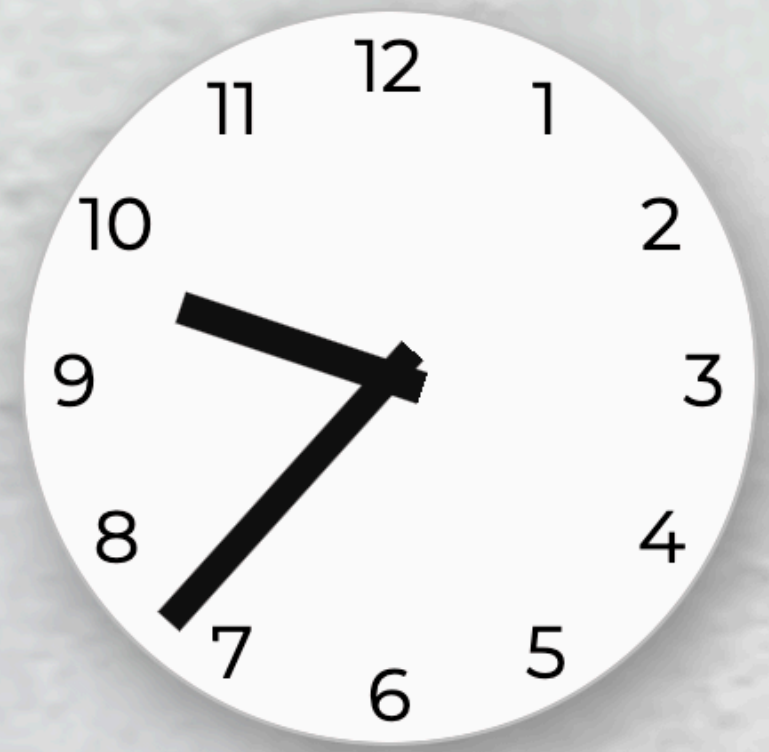
HTML

```
1 <figure>
2   <ol data-
   timezone="America/New
   _York" class="clock"
   role="image"></ol>
16 <figcaption>
17   Manhattan
18 </figcaption>
19 </figure>
20 <figure>
21 <ol data-
```

* CSS (SCSS)

JS

```
9 clockElement.setTime
= function() {
10 window.requestAnimati
   onFrame(() => {
11   const now = new
   Date();
12   [h, m, s] =
   Intl.DateTimeFormat('
   de-DE', {
13     hour:
   "numeric",
14     minute:
```



MANHATTAN



BERLIN



BOLLYWOOD



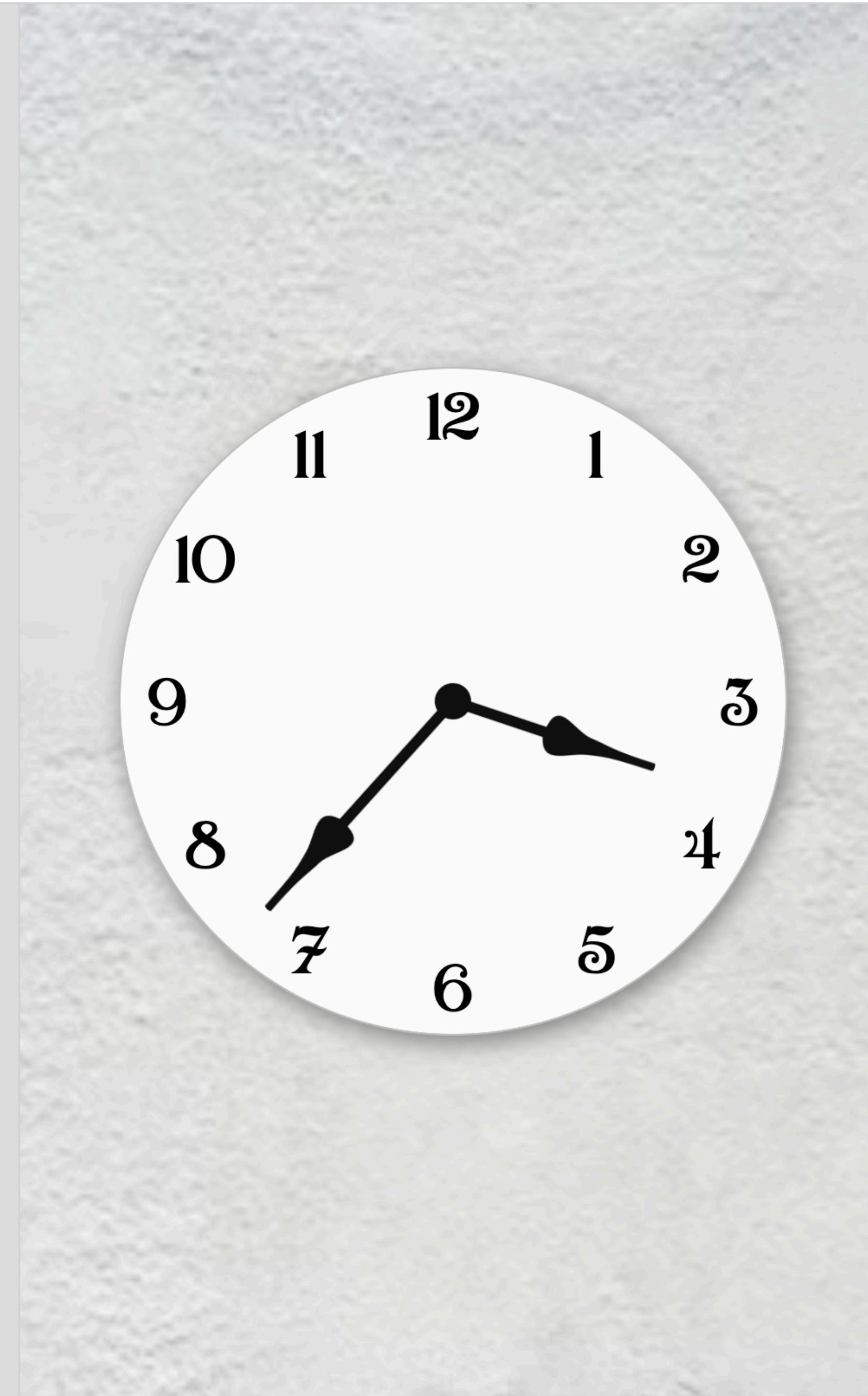
SEOUL

HTML

* CSS (SCSS)

```
26
27 &::before, &::after {
28   content: '';
29   grid-column: 1;
30   grid-row: 1;
31   width: 7cqw;
32 }
33
34 &::after {
35   background: url("data:image/svg+xml,%3Csvg xmlns='http://www.w3.org
43 /2000/svg' viewBox='-50 -800 100 1600' fill='%231111'%3E%3Cpath d='m13-41a43
43 0 11-26 0v-352c-74-10-12-65-8-112s11-57 9-164q11-4 19 1c1 103 3 114 13
161s59 97-7 115z'/%3E%3C/svg%3E") no-repeat center;
36   rotate: calc(var(--partOfHour) * 1turn);
37   transition: rotate linear calc(var(--refresh, 0) * 1ms/2);
38 }
39
40 &::before {
41   background: url("data:image/svg+xml,%3Csvg xmlns='http://www.w3.org
43 /2000/svg' viewBox='-50 -800 100 1600' fill='%231111'%3E%3Cpath d='m13-41a43
43 0 11-26 0v-192c-74-10-12-65-8-112s11-57 9-164q11-4 19 1c1 103 3 114 13
161s59 97-7 115z'/%3E%3C/svg%3E") no-repeat center;
42   rotate: calc((var(--hours) + var(--partOfHour))/12 * 1turn);
43 }
44
```

JS



HTML

* CSS (SCSS)

```
34
35 &::before, &::after {
36   content: '';
37   grid-column: 1;
38   grid-row: 1;
39   width: 7cqw;
40 }
41
42 &::after {
43   background: url("data:image/svg+xml,%3Csvg xmlns='http://www.w3.org
44 /2000/svg' viewBox='-50 -800 100 1600' fill='%231111'%3E%3Cpath d='m13-41a43
45 43 0 11-26 0v-352c-74-10-12-65-8-112s11-57 9-164q11-4 19 1c1 103 3 114 13
46 161s59 97-7 115z'/%3E%3C/svg%3E") no-repeat center;
47   rotate: calc(var(--partOfHour) * 1turn);
48   transition: rotate linear calc(var(--refresh, 0) * 1ms/2);
49 }
50 &::before {
51   background: url("data:image/svg+xml,%3Csvg xmlns='http://www.w3.org
52 /2000/svg' viewBox='-50 -800 100 1600' fill='%231111'%3E%3Cpath d='m13-41a43
53 43 0 11-26 0v-192c-74-10-12-65-8-112s11-57 9-164q11-4 19 1c1 103 3 114 13
54 161s59 97-7 115z'/%3E%3C/svg%3E") no-repeat center;
55   rotate: calc((var(--hours) + var(--partOfHour))/12 * 1turn);
56 }
```

JS

