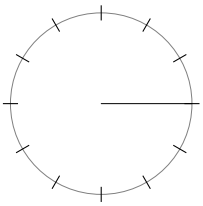
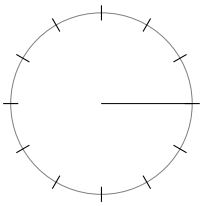
Sinus- und Kosinusfunktion

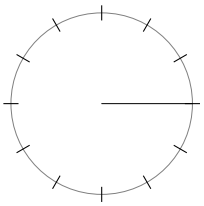
1. **Bogenmass.** Rechnen Sie den Winkel in die andere Einheit um und zeichnen Sie den Winkel im Kreis ein.



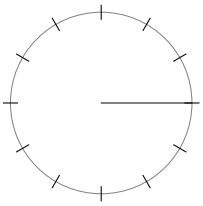
(a) $30° =$



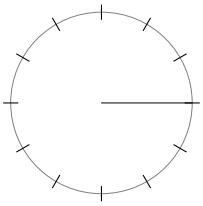
(b) $\frac{\pi}{4}$ rad $=$



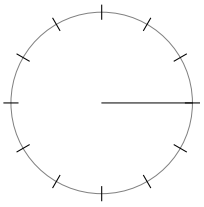
(c) $60° =$



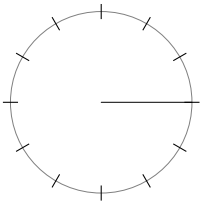
(d) $90° =$



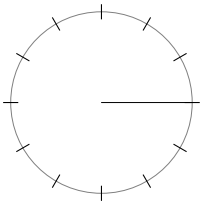
(e) $\frac{2\pi}{3}$ rad $=$



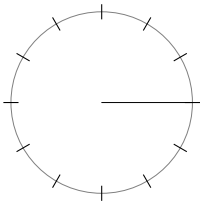
(f) $\frac{3\pi}{4}$ rad $=$



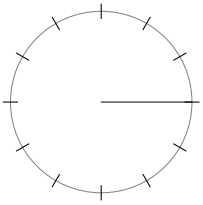
(g) $150° =$



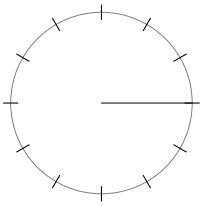
(h) π rad $=$



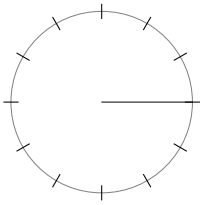
(i) $210° =$



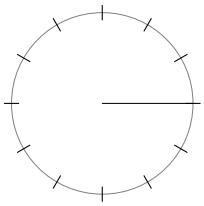
(j) $\frac{5\pi}{4}$ rad $=$



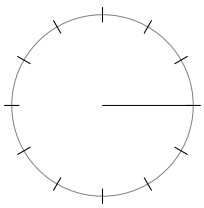
(k) $\frac{4\pi}{3}$ rad $=$



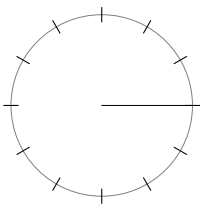
(l) $270° =$



(m) $\frac{5\pi}{3}$ rad $=$



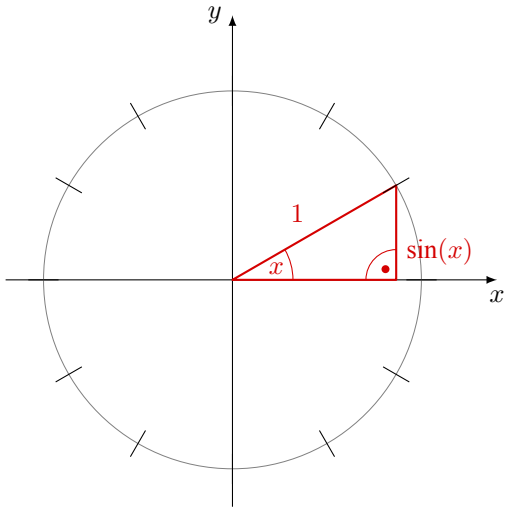
(n) $315° =$

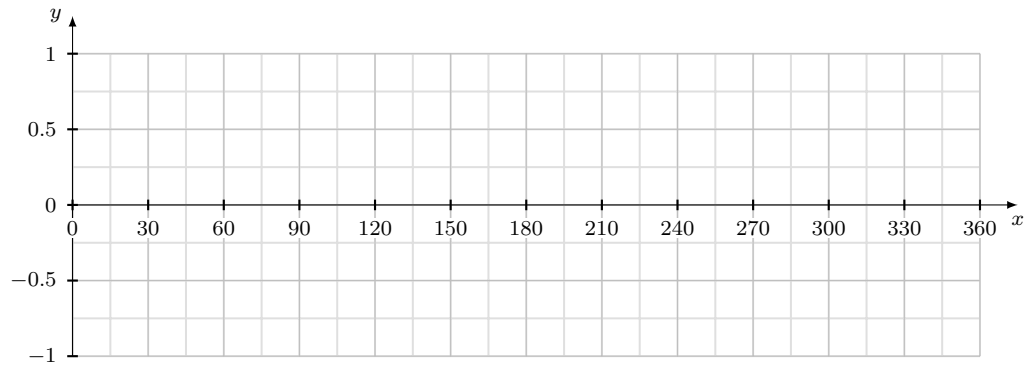


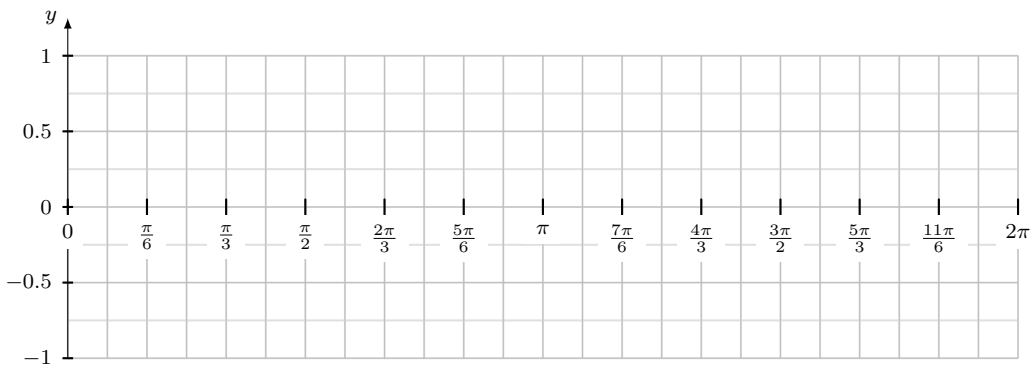
(o) $330° =$

2. Sinusfunktion. Berechnen Sie die Werte der Sinusfunktion für die angegebenen Winkel. Nutzen Sie Symmetrien am Einheitskreis, um unnötige Berechnungen zu vermeiden. Zeichnen Sie anschliessend den Funktionsgraphen in den beiden Koordinatensystemen ein.

x [Grad]	x [Radiant]	$\sin(x)$
$0°$	0	
$30°$	$\frac{\pi}{6} \approx 0.5236$	
$60°$	$\frac{\pi}{3} \approx 1.0472$	
$90°$	$\frac{\pi}{2} \approx 1.5708$	
$120°$	$\frac{2\pi}{3} \approx 2.0944$	
$150°$	$\frac{5\pi}{6} \approx 2.6180$	
$180°$	$\pi \approx 3.1416$	
$210°$	$\frac{7\pi}{6} \approx 3.6652$	
$240°$	$\frac{4\pi}{3} \approx 4.1888$	
$270°$	$\frac{3\pi}{2} \approx 4.7124$	
$300°$	$\frac{5\pi}{3} \approx 5.2360$	
$330°$	$\frac{11\pi}{6} \approx 5.7596$	
$360°$	$2\pi \approx 6.2832$	

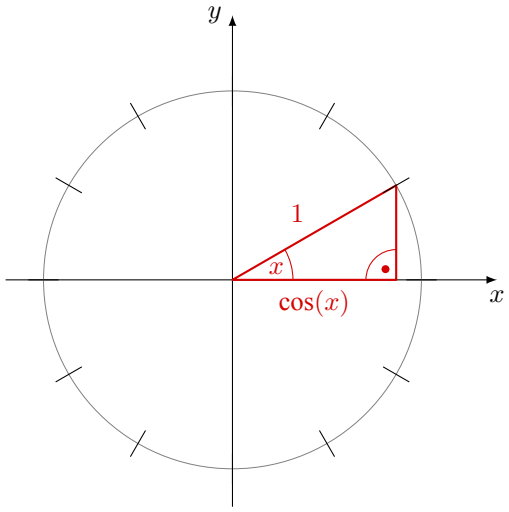


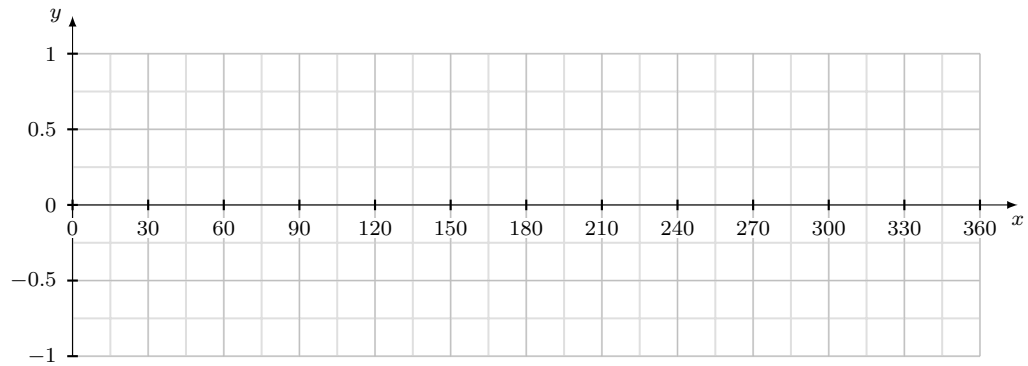


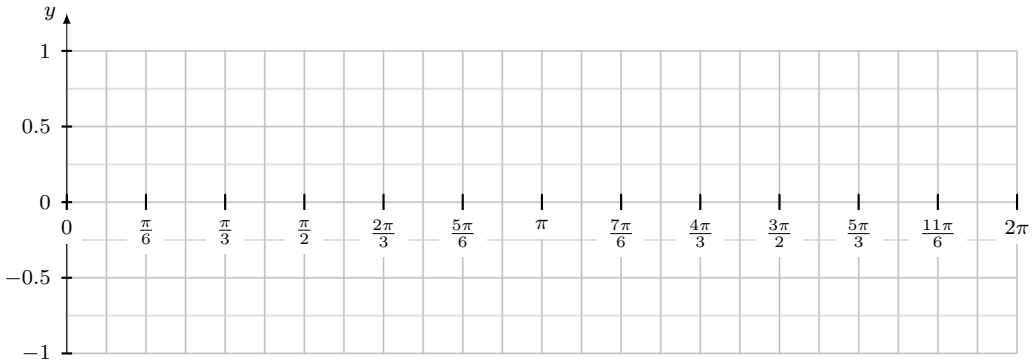


3. Kosinusfunktion. Berechnen Sie die Werte der Kosinusfunktion für die angegebenen Winkel. Nutzen Sie Symmetrien am Einheitskreis, um unnötige Berechnungen zu vermeiden. Zeichnen Sie anschliessend den Funktionsgraphen in den beiden Koordinatensystemen ein.

x [Grad]	x [Radiant]	$\sin(x)$
$0°$	0	
$30°$	$\frac{\pi}{6} \approx 0.5236$	
$60°$	$\frac{\pi}{3} \approx 1.0472$	
$90°$	$\frac{\pi}{2} \approx 1.5708$	
$120°$	$\frac{2\pi}{3} \approx 2.0944$	
$150°$	$\frac{5\pi}{6} \approx 2.6180$	
$180°$	$\pi \approx 3.1416$	
$210°$	$\frac{7\pi}{6} \approx 3.6652$	
$240°$	$\frac{4\pi}{3} \approx 4.1888$	
$270°$	$\frac{3\pi}{2} \approx 4.7124$	
$300°$	$\frac{5\pi}{3} \approx 5.2360$	
$330°$	$\frac{11\pi}{6} \approx 5.7596$	
$360°$	$2\pi \approx 6.2832$	

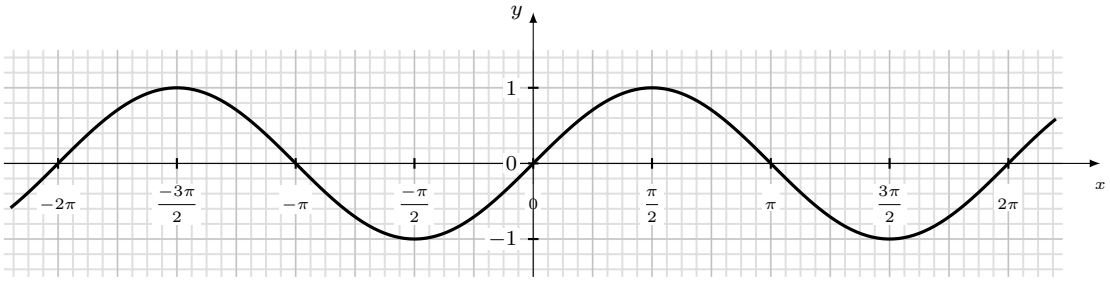






4. **Eigenschaften Sinusfunktion.** Geben Sie die Eigenschaften der Sinusfunktion an.

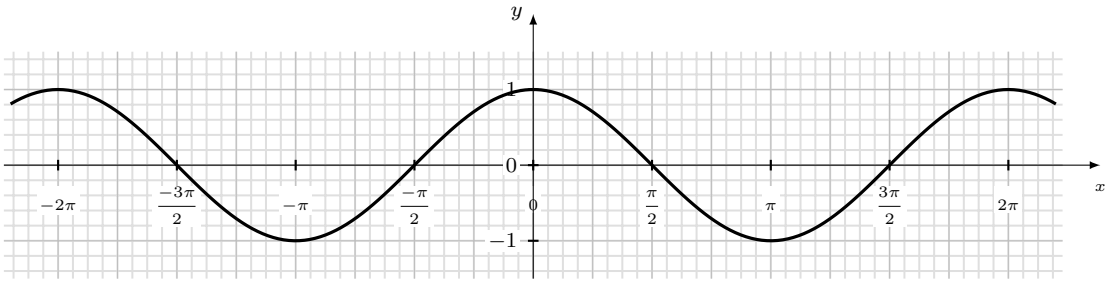
$$f(x) = \sin(x)$$



Definitionsmenge	
Wertemenge	
Periodenlänge	
Nullstellen	
Symmetrie	

5. **Eigenschaften Kosinusfunktion.** Geben Sie die Eigenschaften der Kosinusfunktion an.

$$f(x) = \cos(x)$$



Definitionsmenge	
Wertemenge	
Periodenlänge	
Nullstellen	
Symmetrie	