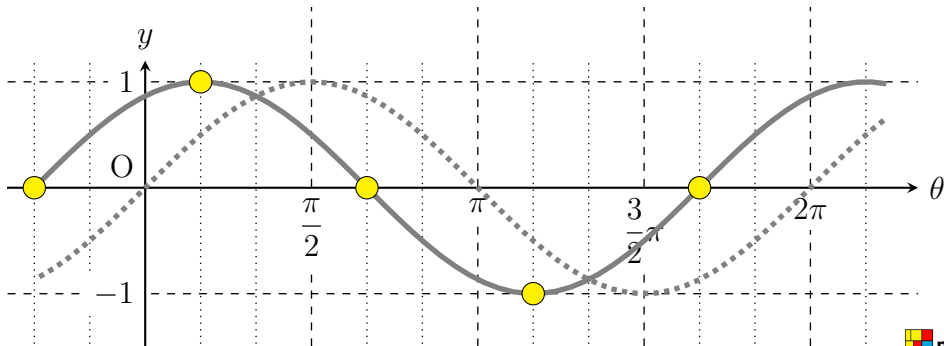


三角関数

1200. 正弦余弦のグラフ

$y = \sin(\theta + \frac{\pi}{3})$ のグラフを描きなさい。



今回の学習目標

波の変化

- $y = a \sin(\theta - p)$ の a と p は波をどう変えるか？

まずは、GeoGebra でグラフを描いてみよう

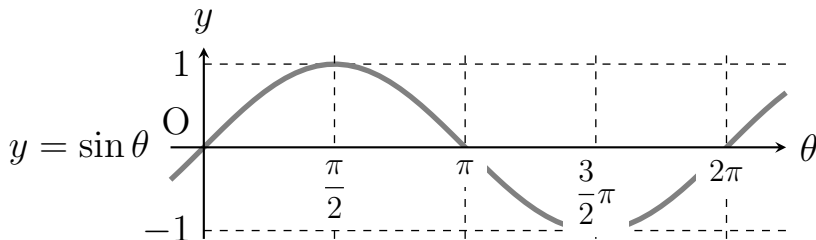
$$y = \sin x$$

$$y = 2 \sin x$$

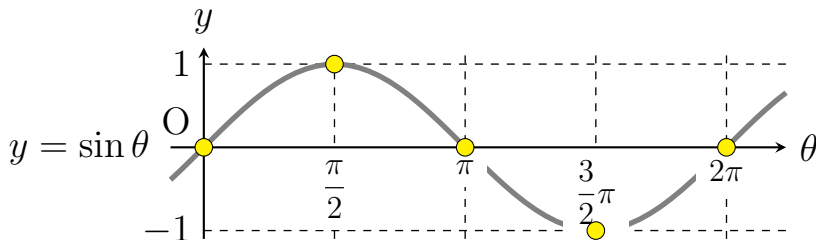
$$y = \sin\left(x + \frac{\pi}{6}\right)$$



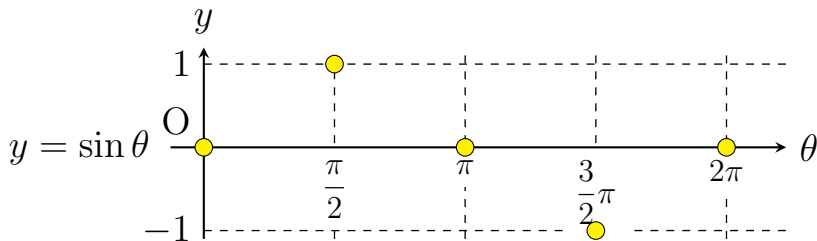
サインとコサインのグラフは、周期を意識して、横軸の交点、最大値、最小値の点を押さえる。



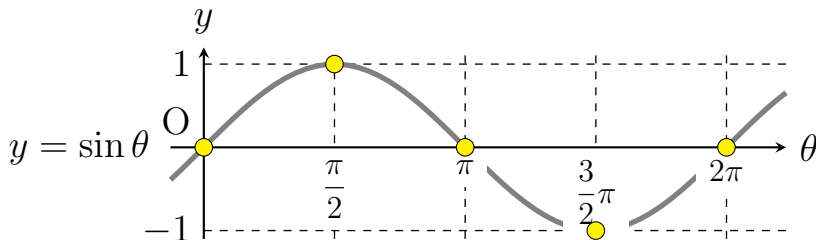
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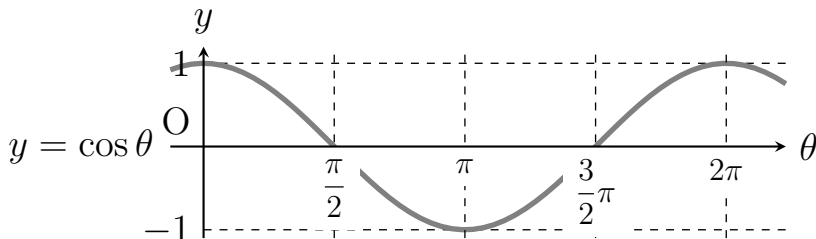
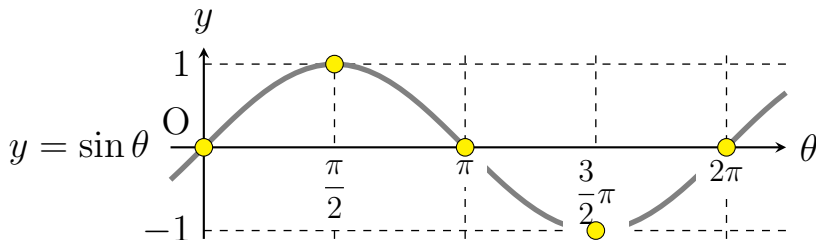
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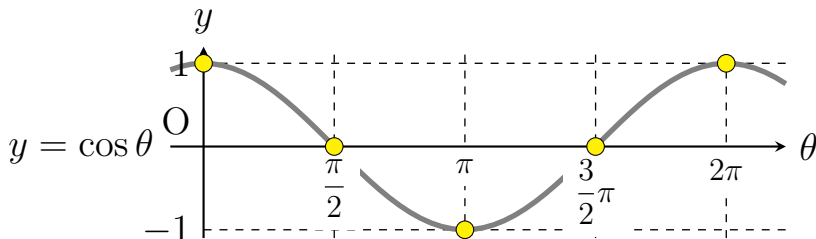
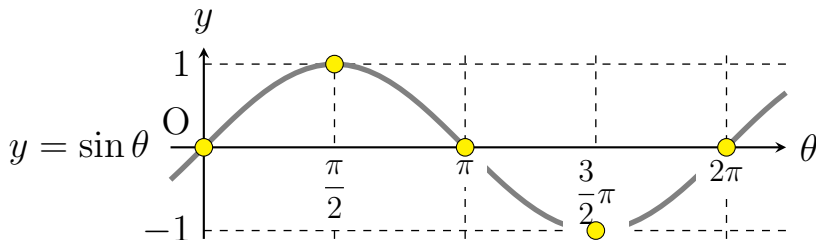
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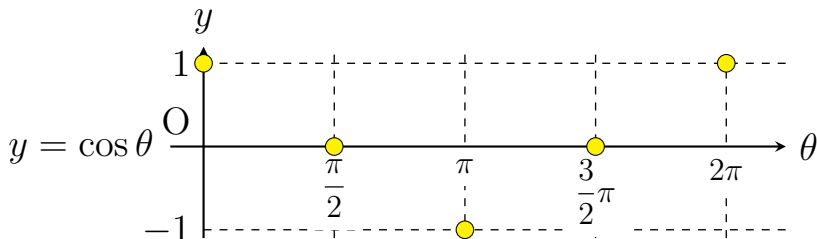
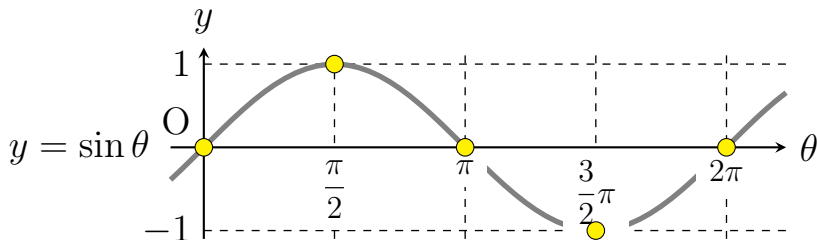
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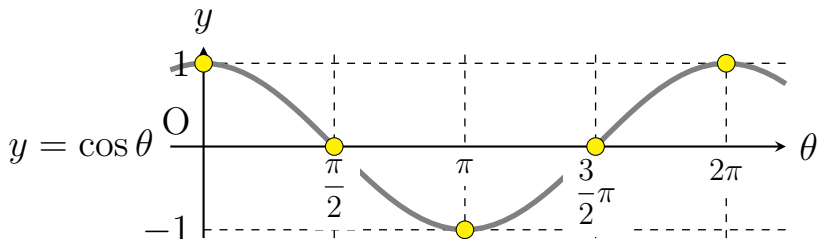
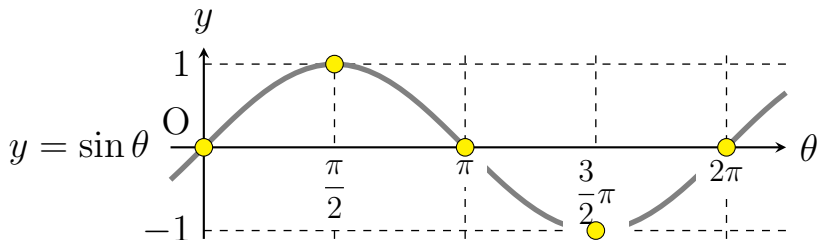
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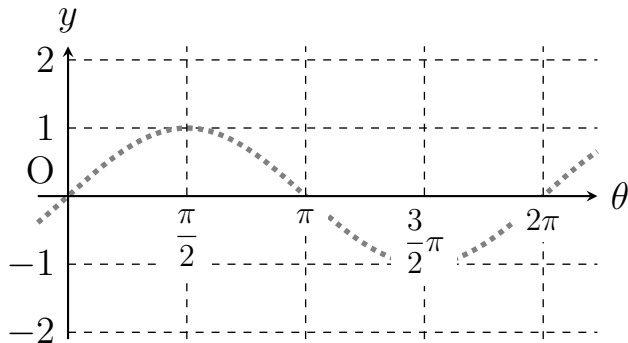
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例 1

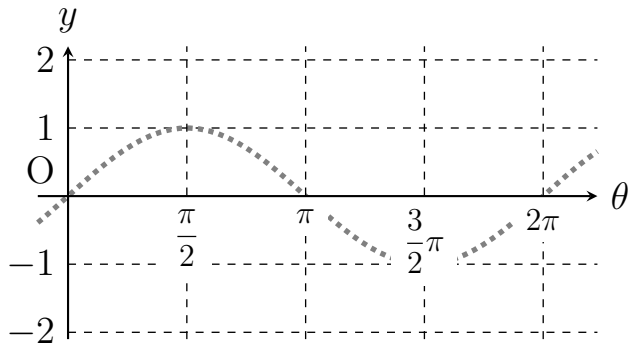
$y = 2 \sin \theta$ のグラフを描け。

θ	0	$\frac{\pi}{2}$	π	$\frac{3}{2}\pi$	2π
$\sin \theta$	0	1	0	-1	0
$2 \sin \theta$					



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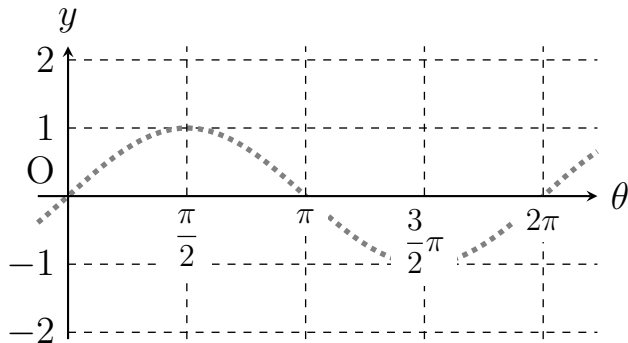
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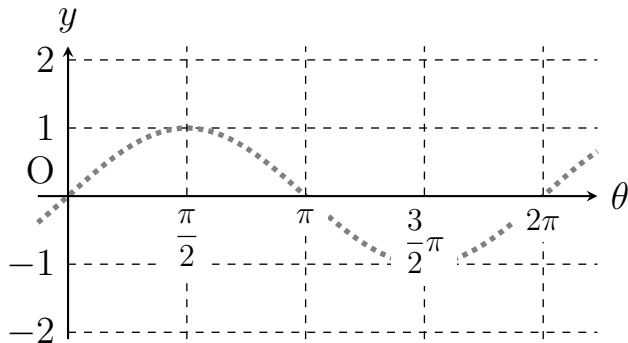
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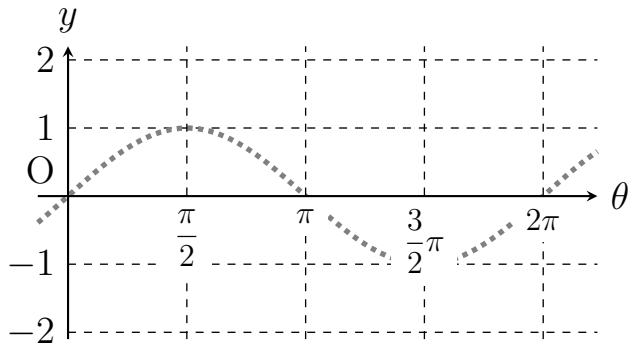
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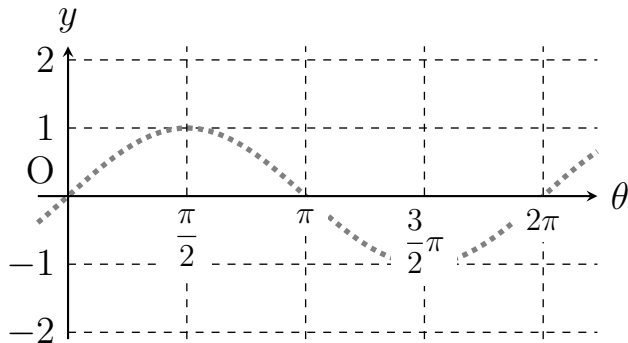
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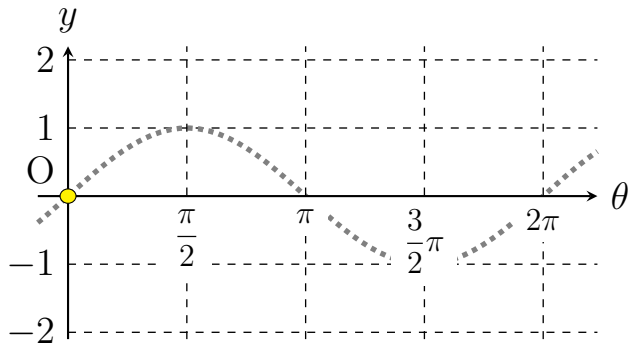
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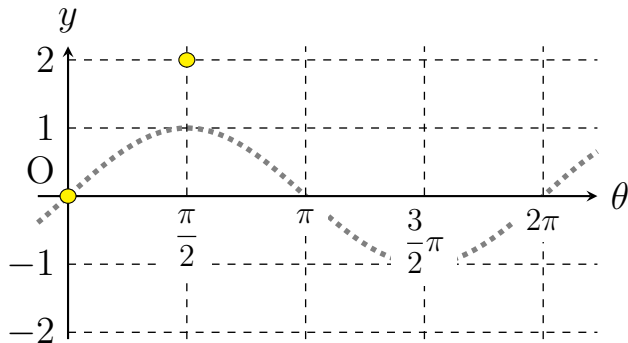
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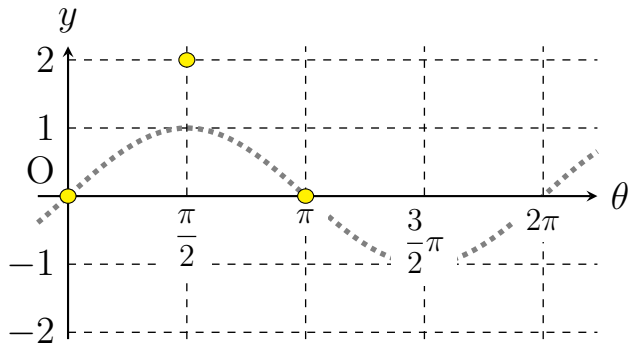
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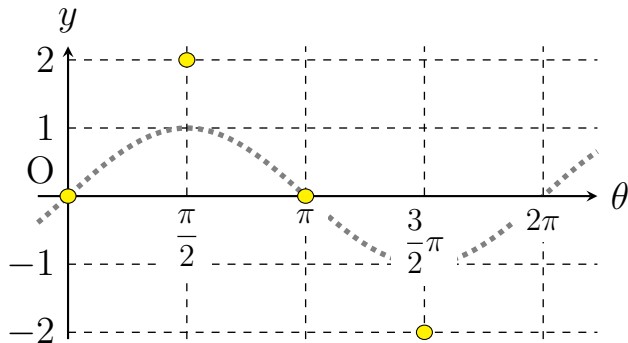
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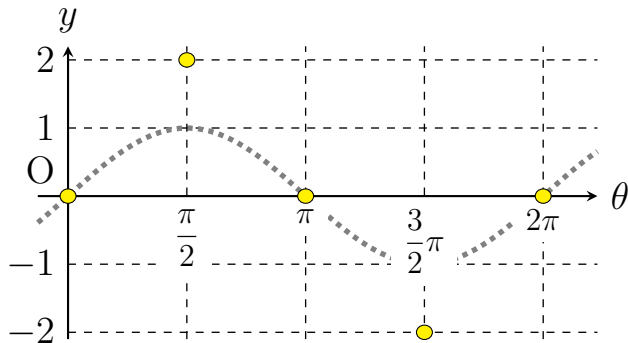
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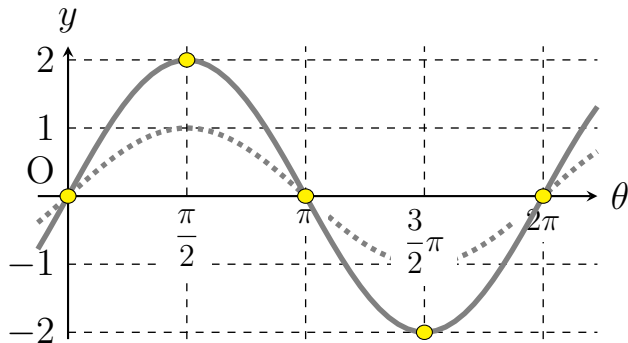
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振幅

$$y = a \sin \theta$$

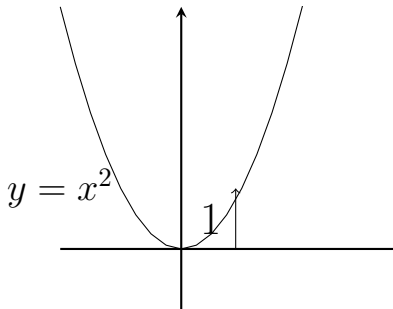
$y = \sin \theta$ のグラフの振幅が a 倍になる。



振幅

$$y = a \sin \theta$$

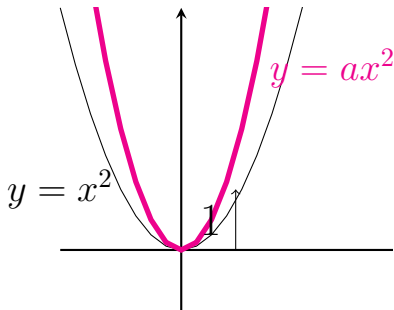
$y = \sin \theta$ のグラフの振幅が a 倍になる。



振幅

$$y = a \sin \theta$$

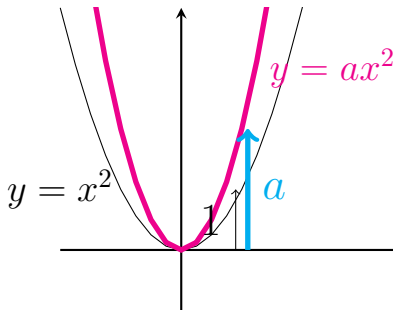
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振幅

$$y = a \sin \theta$$

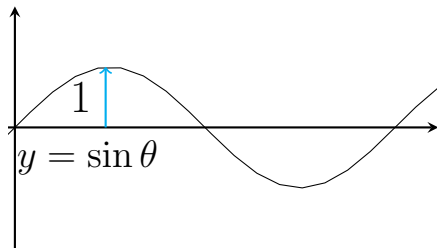
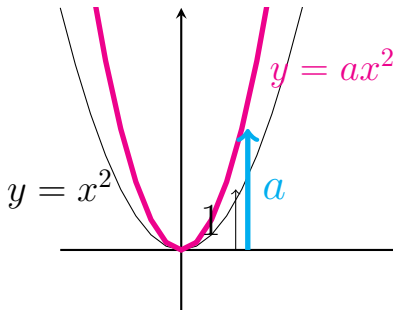
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振幅

$$y = a \sin \theta$$

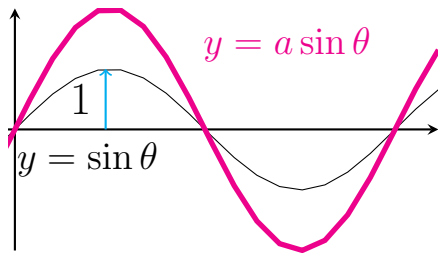
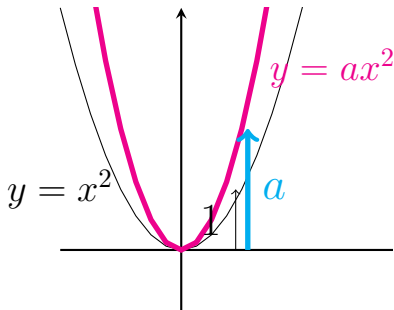
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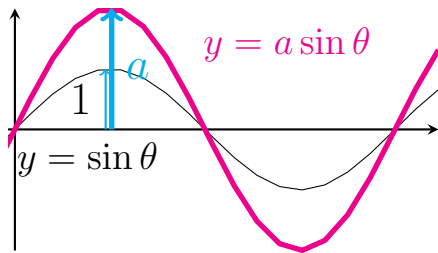
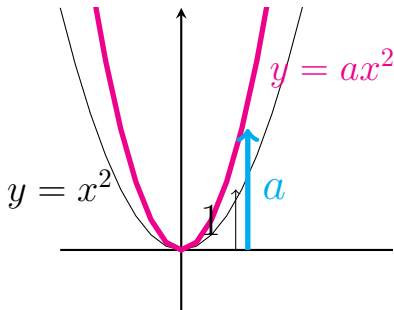
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振幅

$$y = a \sin \theta$$

$y = \sin \theta$ のグラフの振幅が a 倍になる。



ビデオを止めて問題を解いてみよう

問 1

$y = \frac{1}{2} \cos \theta$ のグラフを描け。

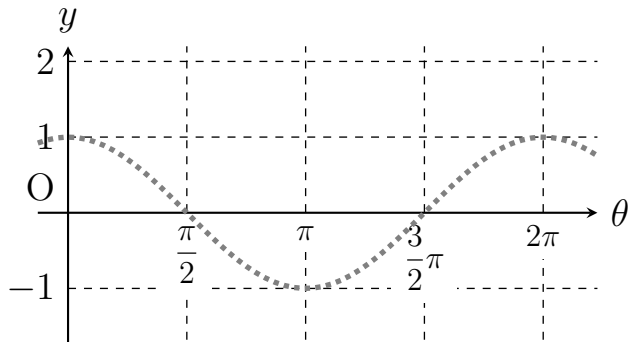


math-support.jp

問 1

$y = \frac{1}{2} \cos \theta$ のグラフを描け。

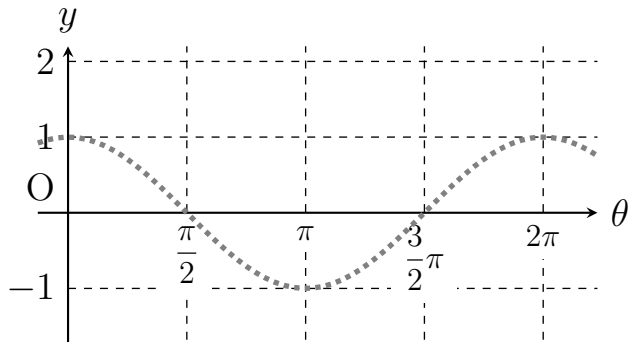
θ	0	$\frac{\pi}{2}$	π	$\frac{3}{2}\pi$	2π
$\cos \theta$	1	0	-1	0	1
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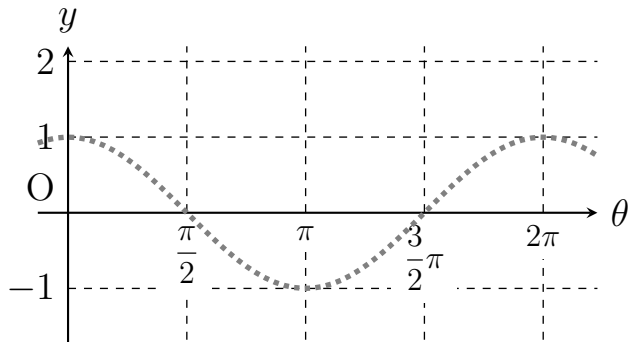
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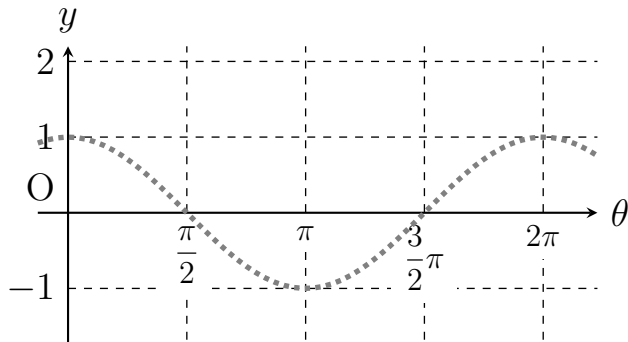
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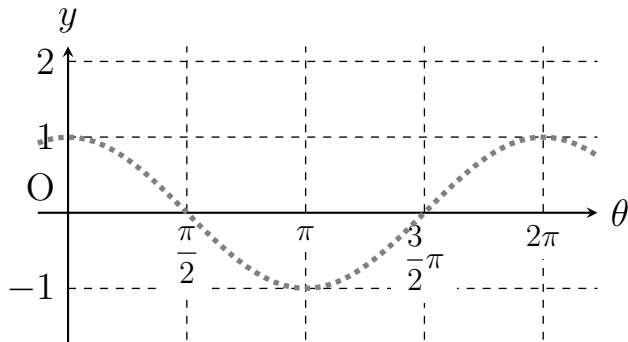
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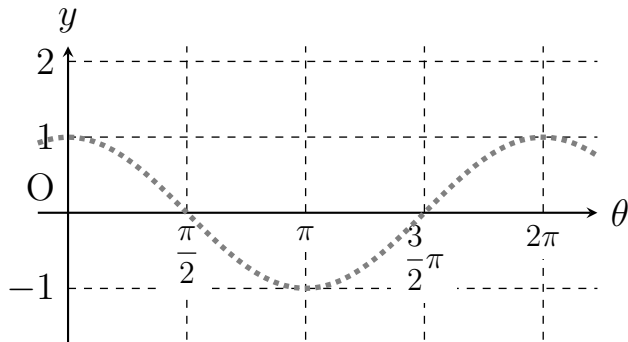
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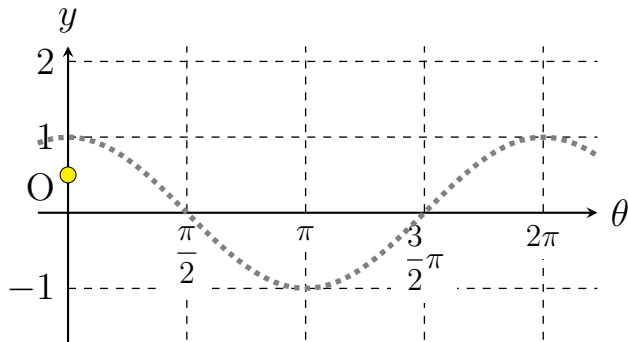
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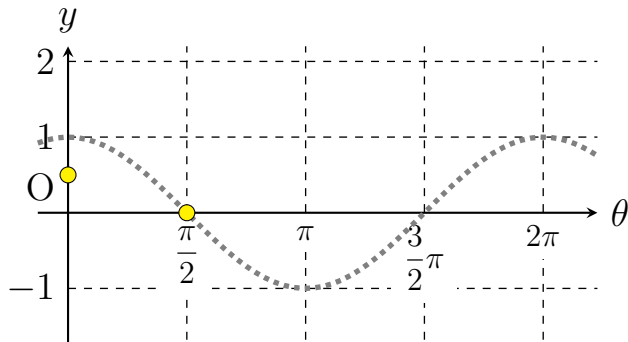
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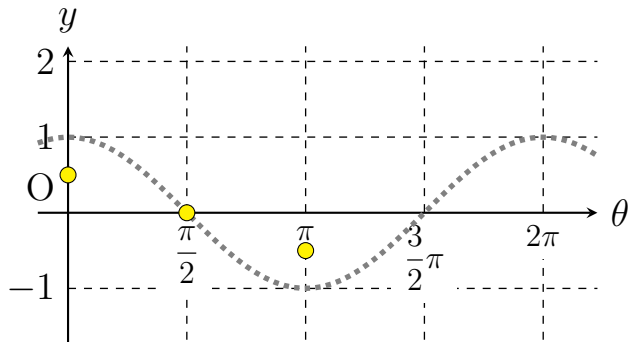
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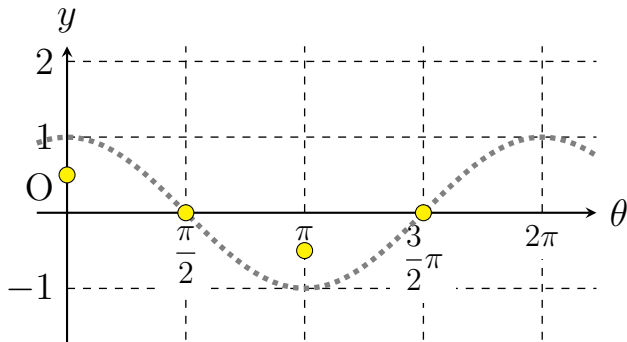
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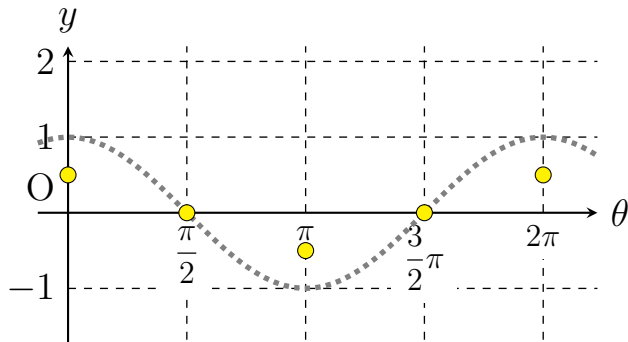
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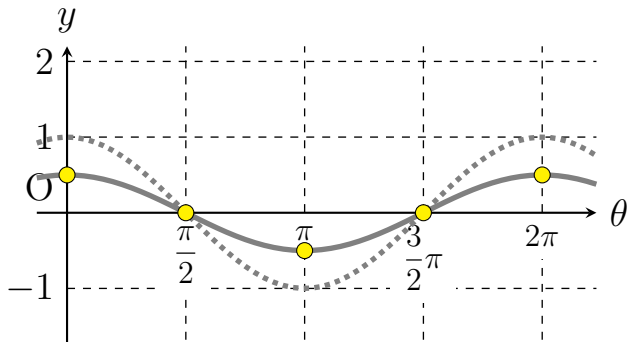
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$\frac{1}{2} \cos \theta$	$\frac{1}{2}$	0	$-\frac{1}{2}$	0	$\frac{1}{2}$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{3}{6}\pi$	$\frac{6}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$	0	1	0	-1	0
$\sin(\theta - \frac{\pi}{6})$					



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{3}{6}\pi$	$\frac{6}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
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$\sin \theta$	0	1	0	-1	0
$\sin(\theta - \frac{\pi}{6})$	0				

$$(\theta - \frac{\pi}{6}) = 0$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$		$\frac{6}{6}\pi$		$\frac{9}{6}\pi$		$\frac{12}{6}\pi$	
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0								

$$(\theta - \frac{\pi}{6}) = 0$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

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$\sin \theta$	0		1		0		-1		0
$\sin(\theta - \frac{\pi}{6})$		0		1					

$$(\theta - \frac{\pi}{6}) = 0$$



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$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

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$\sin \theta$	0		1		0		-1		0
$\sin(\theta - \frac{\pi}{6})$		0		1					

$$(\theta - \frac{\pi}{6}) = 0$$

$$(\theta - \frac{\pi}{6}) = \frac{3}{6}\pi$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$		$\frac{9}{6}\pi$		$\frac{12}{6}\pi$	
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1						

$$(\theta - \frac{\pi}{6}) = 0$$

$$(\theta - \frac{\pi}{6}) = \frac{3}{6}\pi$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$		$\frac{9}{6}\pi$		$\frac{12}{6}\pi$	
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0				

$$(\theta - \frac{\pi}{6}) = 0$$

$$(\theta - \frac{\pi}{6}) = \frac{3}{6}\pi$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$		$\frac{9}{6}\pi$		$\frac{12}{6}\pi$	
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0				

$$(\theta - \frac{\pi}{6}) = 0$$

$$(\theta - \frac{\pi}{6}) = \frac{3}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{6}{6}\pi$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$		$\frac{12}{6}\pi$	
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0				

$$(\theta - \frac{\pi}{6}) = 0$$

$$(\theta - \frac{\pi}{6}) = \frac{3}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{6}{6}\pi$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$	0		1		0		-1	0
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1

$$(\theta - \frac{\pi}{6}) = 0$$

$$(\theta - \frac{\pi}{6}) = \frac{3}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{6}{6}\pi$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$	0		1		0		-1	0
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1

$$(\theta - \frac{\pi}{6}) = 0$$

$$(\theta - \frac{\pi}{6}) = \frac{3}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{6}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{9}{6}\pi$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$	0		1		0		-1		0
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1	

$$(\theta - \frac{\pi}{6}) = 0$$

$$(\theta - \frac{\pi}{6}) = \frac{3}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{6}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{9}{6}\pi$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$	
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1		0

$$(\theta - \frac{\pi}{6}) = 0$$

$$(\theta - \frac{\pi}{6}) = \frac{3}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{6}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{9}{6}\pi$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$	
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1		0

$$(\theta - \frac{\pi}{6}) = 0$$

$$(\theta - \frac{\pi}{6}) = \frac{3}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{6}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{9}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{12}{6}\pi$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$	$\frac{13}{6}\pi$
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1		0

$$(\theta - \frac{\pi}{6}) = 0$$

$$(\theta - \frac{\pi}{6}) = \frac{3}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{6}{6}\pi$$

$$(\theta - \frac{\pi}{6}) = \frac{9}{6}\pi$$

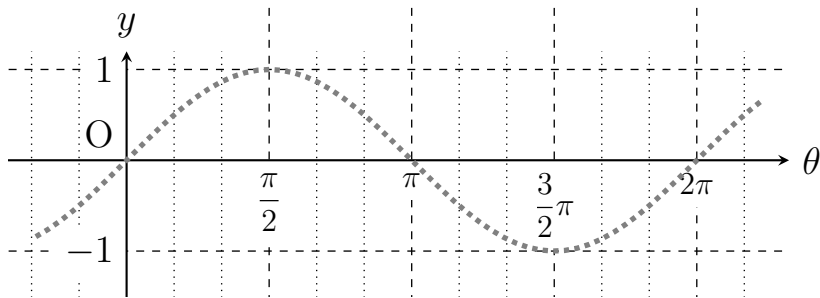
$$(\theta - \frac{\pi}{6}) = \frac{12}{6}\pi$$



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

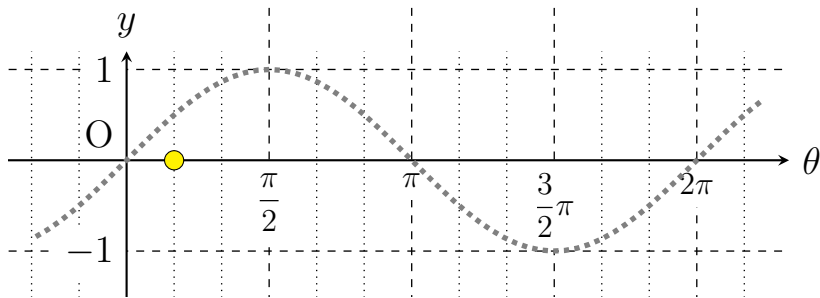
θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$	$\frac{13}{6}\pi$
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1		0



例 2

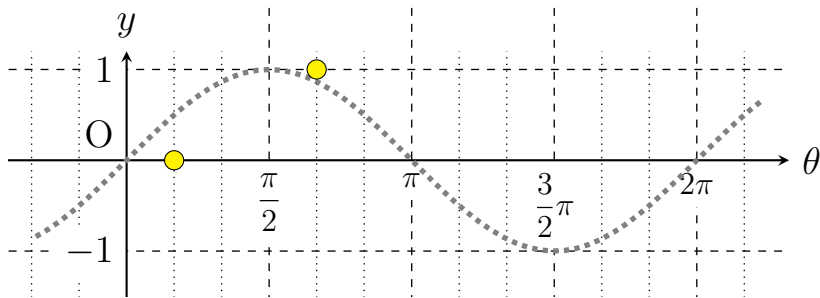
$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$	$\frac{13}{6}\pi$
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1		0



例 2 $y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

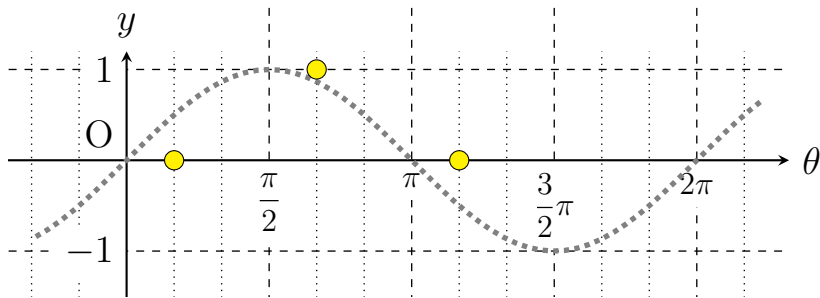
θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$	$\frac{13}{6}\pi$
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1		0



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

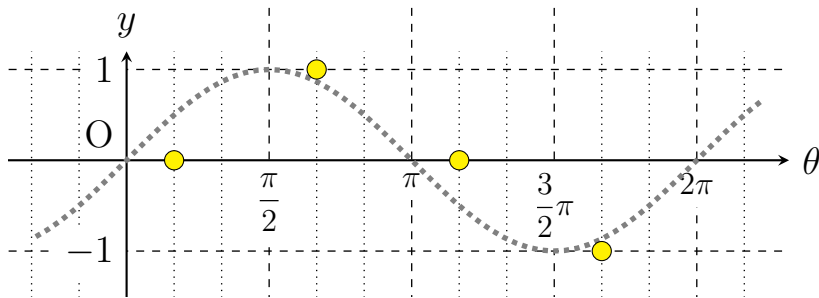
θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$	$\frac{13}{6}\pi$
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1		0



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

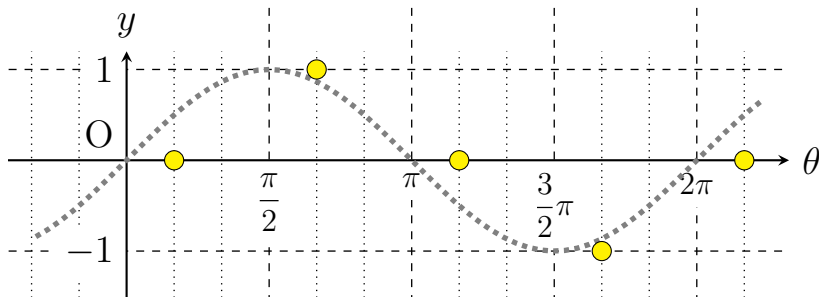
θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$	$\frac{13}{6}\pi$
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1		0



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

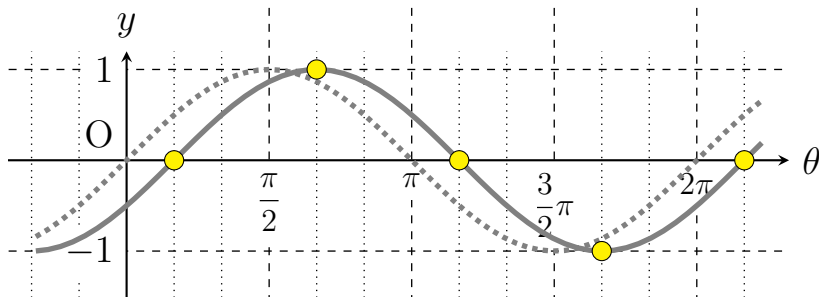
θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$	$\frac{13}{6}\pi$
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1		0



例 2

$y = \sin(\theta - \frac{\pi}{6})$ のグラフを描け。

θ	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$	$\frac{13}{6}\pi$
$\sin \theta$	0		1		0		-1		0	
$\sin(\theta - \frac{\pi}{6})$		0		1		0		-1		0



水平移動

$$y = \sin(\theta - p)$$

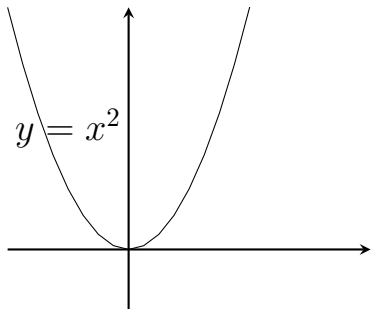
$y = \sin \theta$ のグラフが x 軸方向に p だけ動く。



水平移動

$$y = \sin(\theta - p)$$

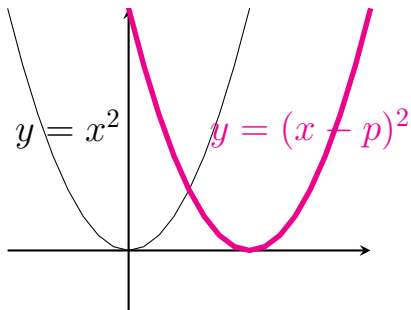
$y = \sin \theta$ のグラフが x 軸方向に p だけ動く。



水平移動

$$y = \sin(\theta - p)$$

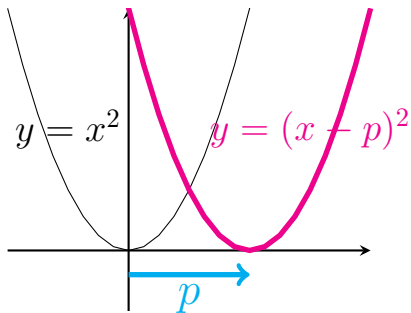
$y = \sin \theta$ のグラフが x 軸方向に p だけ動く。



水平移動

$$y = \sin(\theta - p)$$

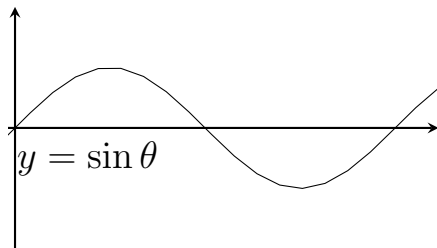
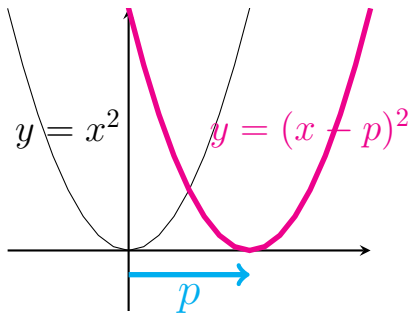
$y = \sin \theta$ のグラフが x 軸方向に p だけ動く。



水平移動

$$y = \sin(\theta - p)$$

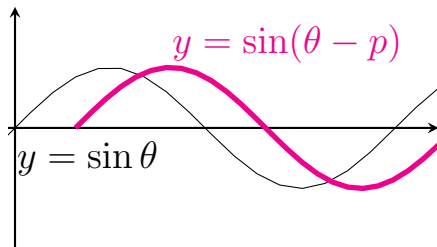
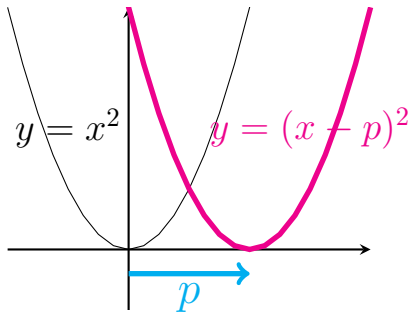
$y = \sin \theta$ のグラフが x 軸方向に p だけ動く。



水平移動

$$y = \sin(\theta - p)$$

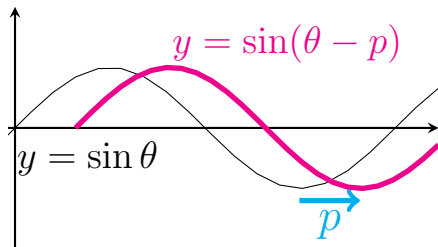
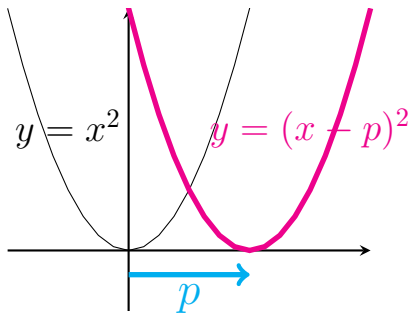
$y = \sin \theta$ のグラフが x 軸方向に p だけ動く。



水平移動

$$y = \sin(\theta - p)$$

$y = \sin \theta$ のグラフが x 軸方向に p だけ動く。



ビデオを止めて問題を解いてみよう

問 2

次の関数のグラフを描きなさい。

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right) \qquad (2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right)$$



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{2}{4}\pi$	$\frac{4}{4}\pi$	$\frac{6}{4}\pi$	$\frac{8}{4}\pi$
$\cos \theta$	1	0	-1	0	1
$\cos\left(\theta - \frac{\pi}{4}\right)$					

問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{2}{4}\pi$	$\frac{4}{4}\pi$	$\frac{6}{4}\pi$	$\frac{8}{4}\pi$
$\cos \theta$	1	0	-1	0	1
$\cos\left(\theta - \frac{\pi}{4}\right)$	1				

問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{2}{4}\pi$	$\frac{4}{4}\pi$	$\frac{6}{4}\pi$	$\frac{8}{4}\pi$
$\cos \theta$	1	0	-1	0	1
$\cos\left(\theta - \frac{\pi}{4}\right)$	1				

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{4}{4}\pi$	$\frac{6}{4}\pi$	$\frac{8}{4}\pi$
$\cos \theta$	1		0	-1	0	1
$\cos\left(\theta - \frac{\pi}{4}\right)$		1				

$$\left(\theta - \frac{\pi}{4}\right) = 0$$



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{4}{4}\pi$	$\frac{6}{4}\pi$	$\frac{8}{4}\pi$
$\cos \theta$	1		0	-1	0	1
$\cos\left(\theta - \frac{\pi}{4}\right)$		1	0			

$$\left(\theta - \frac{\pi}{4}\right) = 0$$



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{4}{4}\pi$	$\frac{6}{4}\pi$	$\frac{8}{4}\pi$
$\cos \theta$	1		0	-1	0	1
$\cos\left(\theta - \frac{\pi}{4}\right)$		1	0			

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{2}{4}\pi$$



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$		$\frac{6}{4}\pi$		$\frac{8}{4}\pi$
$\cos \theta$	1		0		-1		0		1
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0					

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{2}{4}\pi$$



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$		$\frac{6}{4}\pi$		$\frac{8}{4}\pi$	
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1				

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{2}{4}\pi$$



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$		$\frac{6}{4}\pi$		$\frac{8}{4}\pi$	
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1				

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{2}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{4}{4}\pi$$



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$		$\frac{8}{4}\pi$	
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1				

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{2}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{4}{4}\pi$$



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$		$\frac{8}{4}\pi$	
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1		0		

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{2}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{4}{4}\pi$$



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$		$\frac{8}{4}\pi$	
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1		0		

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{2}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{4}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{6}{4}\pi$$

問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$	$\frac{7}{4}\pi$	$\frac{8}{4}\pi$
$\cos \theta$	1		0		-1		0		1
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1		0	

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{2}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{4}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{6}{4}\pi$$

問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$	$\frac{7}{4}\pi$	$\frac{8}{4}\pi$	
$\cos \theta$	1		0		-1		0		1	
$\cos(\theta - \frac{\pi}{4})$		1		0		-1		0		1

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{2}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{4}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{6}{4}\pi$$

問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$	$\frac{7}{4}\pi$	$\frac{8}{4}\pi$	
$\cos \theta$	1		0		-1		0		1	
$\cos(\theta - \frac{\pi}{4})$		1		0		-1		0		1

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{2}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{4}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{6}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{8}{4}\pi$$

問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$	$\frac{7}{4}\pi$	$\frac{8}{4}\pi$	$\frac{9}{4}\pi$
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1		0		1

$$\left(\theta - \frac{\pi}{4}\right) = 0$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{2}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{4}{4}\pi$$

$$\left(\theta - \frac{\pi}{4}\right) = \frac{6}{4}\pi$$

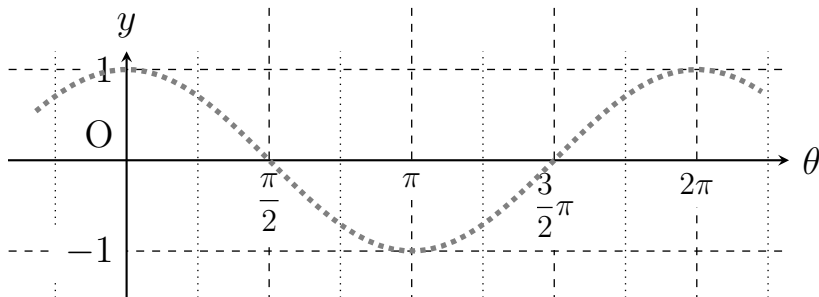
$$\left(\theta - \frac{\pi}{4}\right) = \frac{8}{4}\pi$$



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

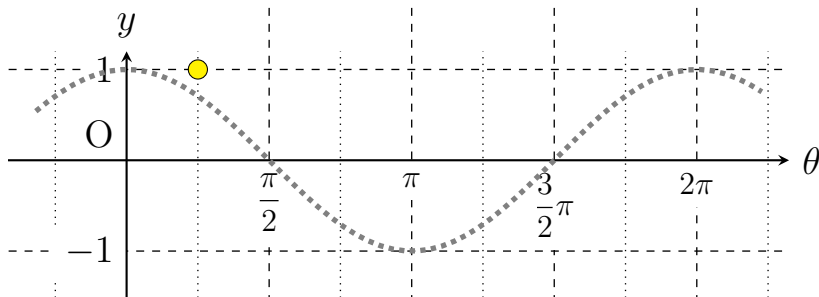
θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$	$\frac{7}{4}\pi$	$\frac{8}{4}\pi$	$\frac{9}{4}\pi$
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1		0		1



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

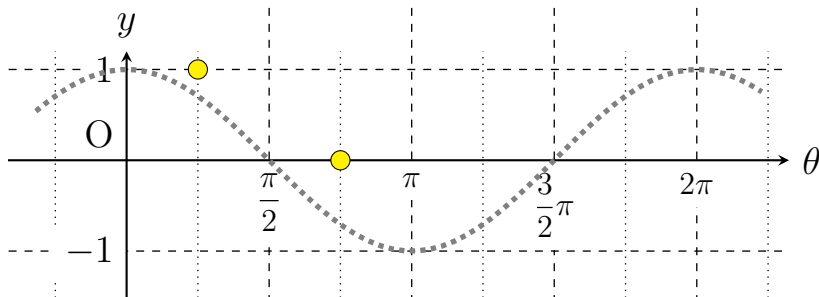
θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$	$\frac{7}{4}\pi$	$\frac{8}{4}\pi$	$\frac{9}{4}\pi$
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1		0		1



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

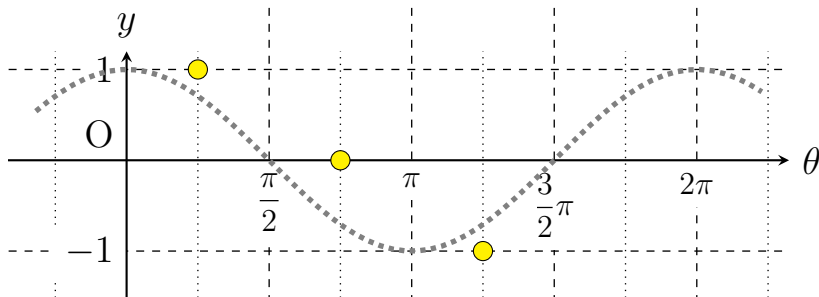
θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$	$\frac{7}{4}\pi$	$\frac{8}{4}\pi$	$\frac{9}{4}\pi$
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1		0		1



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

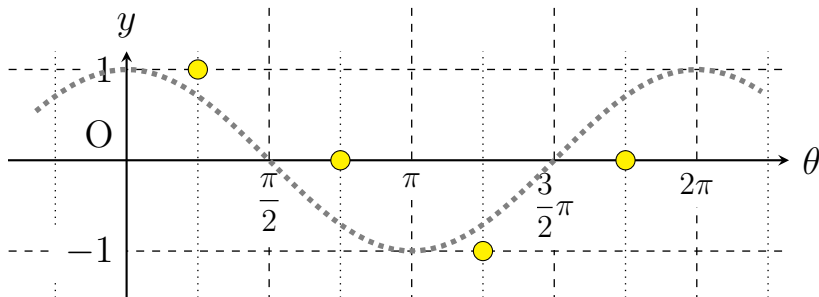
θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$	$\frac{7}{4}\pi$	$\frac{8}{4}\pi$	$\frac{9}{4}\pi$
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1		0		1



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

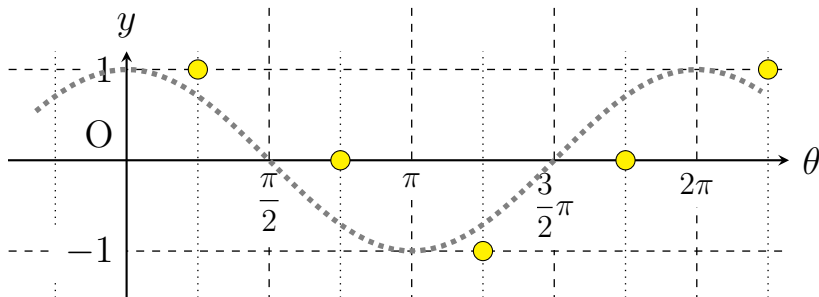
θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$	$\frac{7}{4}\pi$	$\frac{8}{4}\pi$	$\frac{9}{4}\pi$
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1		0		1



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

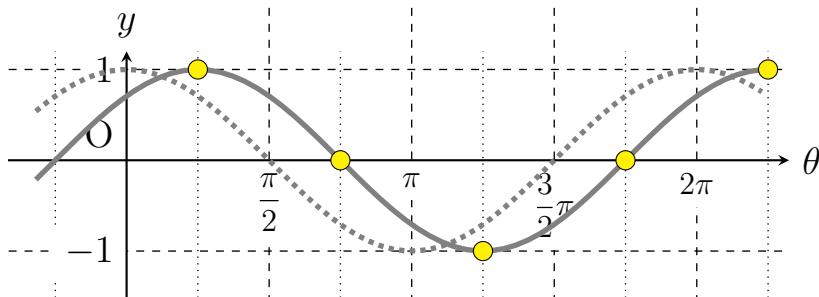
θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$	$\frac{7}{4}\pi$	$\frac{8}{4}\pi$	$\frac{9}{4}\pi$
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1		0		1



問 2

$$(1) \quad y = \cos\left(\theta - \frac{\pi}{4}\right)$$

θ	0	$\frac{1}{4}\pi$	$\frac{2}{4}\pi$	$\frac{3}{4}\pi$	$\frac{4}{4}\pi$	$\frac{5}{4}\pi$	$\frac{6}{4}\pi$	$\frac{7}{4}\pi$	$\frac{8}{4}\pi$	$\frac{9}{4}\pi$
$\cos \theta$	1		0		-1		0		1	
$\cos\left(\theta - \frac{\pi}{4}\right)$		1		0		-1		0		1



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right)$$

θ	0	$\frac{3}{6}\pi$	$\frac{6}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$	0	1	0	-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$					



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	0	$\frac{3}{6}\pi$	$\frac{6}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$	0	1	0	-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$					



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ		0		$\frac{3}{6}\pi$		$\frac{6}{6}\pi$		$\frac{9}{6}\pi$		$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1		0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0									



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	0	$\frac{3}{6}\pi$	$\frac{6}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$	0	1	0	-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0				

$$\left(\theta + \frac{2\pi}{6}\right) = 0$$



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2\pi}{6}$	0	$\frac{3}{6}\pi$	$\frac{6}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0	1	0	-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0					

$$\left(\theta + \frac{2\pi}{6}\right) = 0$$

問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2\pi}{6}$	0	$\frac{3\pi}{6}$	$\frac{6\pi}{6}$	$\frac{9\pi}{6}$	$\frac{12\pi}{6}$
$\sin \theta$		0	1	0	-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1			

$$\left(\theta + \frac{2\pi}{6}\right) = 0$$



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2\pi}{6}$	0	$\frac{3}{6}\pi$	$\frac{6}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0	1	0	-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1			

$$\begin{aligned} \left(\theta + \frac{2\pi}{6}\right) &= 0 \\ \left(\theta + \frac{2\pi}{6}\right) &= \frac{3}{6}\pi \end{aligned}$$

問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2\pi}{6}$	0	$\frac{1\pi}{6}$	$\frac{3\pi}{6}$	$\frac{6\pi}{6}$	$\frac{9\pi}{6}$	$\frac{12\pi}{6}$
$\sin \theta$		0		1		0	
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1				

$$\begin{aligned} \left(\theta + \frac{2\pi}{6}\right) &= 0 \\ \left(\theta + \frac{2\pi}{6}\right) &= \frac{3\pi}{6} \end{aligned}$$



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2\pi}{6}$	0	$\frac{1\pi}{6}$	$\frac{3\pi}{6}$	$\frac{6\pi}{6}$	$\frac{9\pi}{6}$	$\frac{12\pi}{6}$
$\sin \theta$		0		1	0	-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		

$$\begin{aligned} \left(\theta + \frac{2\pi}{6}\right) &= 0 \\ \left(\theta + \frac{2\pi}{6}\right) &= \frac{3\pi}{6} \end{aligned}$$



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{6}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1	0	-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		

$$\left(\theta + \frac{2\pi}{6}\right) = 0$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{3}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{6}{6}\pi$$

問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2\pi}{6}$	0	$\frac{1\pi}{6}$	$\frac{3\pi}{6}$	$\frac{4\pi}{6}$	$\frac{6\pi}{6}$	$\frac{9\pi}{6}$	$\frac{12\pi}{6}$
$\sin \theta$		0		1		0	-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0			

$$\left(\theta + \frac{2\pi}{6}\right) = 0$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{3\pi}{6}$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{6\pi}{6}$$

問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2\pi}{6}$	0	$\frac{1\pi}{6}$	$\frac{3\pi}{6}$	$\frac{4\pi}{6}$	$\frac{6\pi}{6}$	$\frac{9\pi}{6}$	$\frac{12\pi}{6}$
$\sin \theta$		0		1		0	-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0	-1		

$$\left(\theta + \frac{2\pi}{6}\right) = 0$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{3\pi}{6}$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{6\pi}{6}$$



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0	-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0	-1		

$$\left(\theta + \frac{2\pi}{6}\right) = 0$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{3}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{6}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{9}{6}\pi$$

問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		-1		

$$\left(\theta + \frac{2\pi}{6}\right) = 0$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{3}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{6}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{9}{6}\pi$$

問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		-1		0

$$\left(\theta + \frac{2\pi}{6}\right) = 0$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{3}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{6}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{9}{6}\pi$$



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1	0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		-1		0

$$\left(\theta + \frac{2\pi}{6}\right) = 0$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{3}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{6}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{9}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{12}{6}\pi$$

問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1		0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		-1		0	

$$\left(\theta + \frac{2\pi}{6}\right) = 0$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{3}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{6}{6}\pi$$

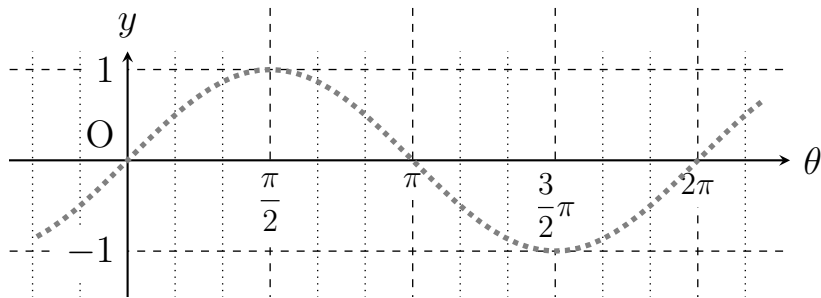
$$\left(\theta + \frac{2\pi}{6}\right) = \frac{9}{6}\pi$$

$$\left(\theta + \frac{2\pi}{6}\right) = \frac{12}{6}\pi$$

問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

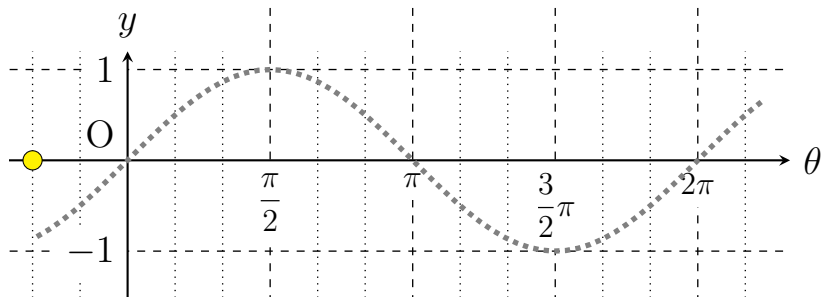
θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1		0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		-1		0	



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

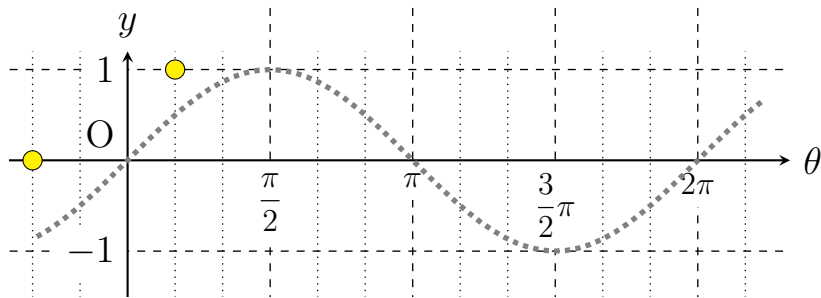
θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1		0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		-1		0	



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

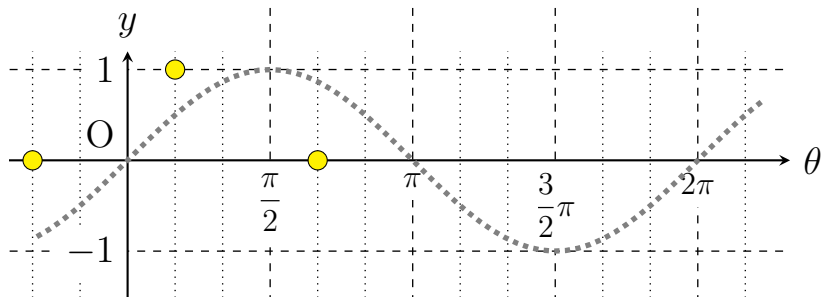
θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1		0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		-1		0	



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

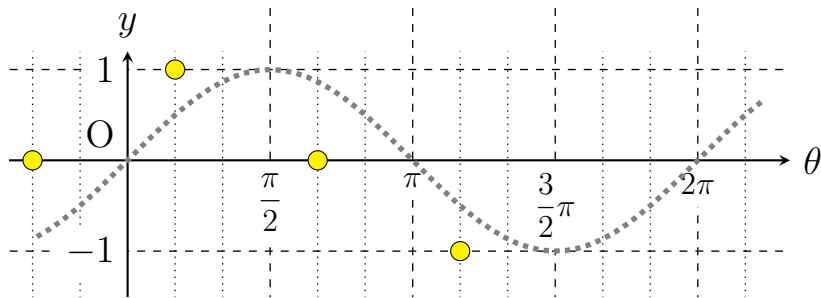
θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1		0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		-1		0	



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

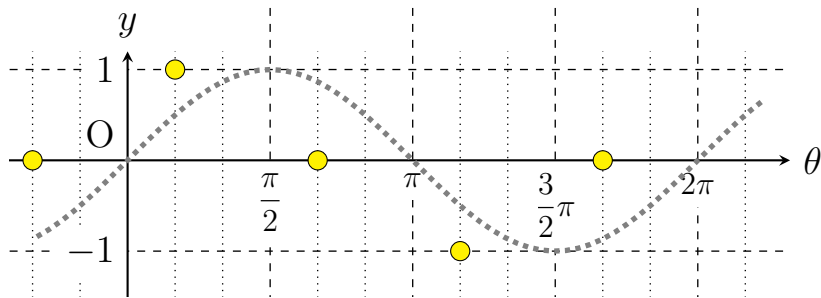
θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1		0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		-1		0	



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

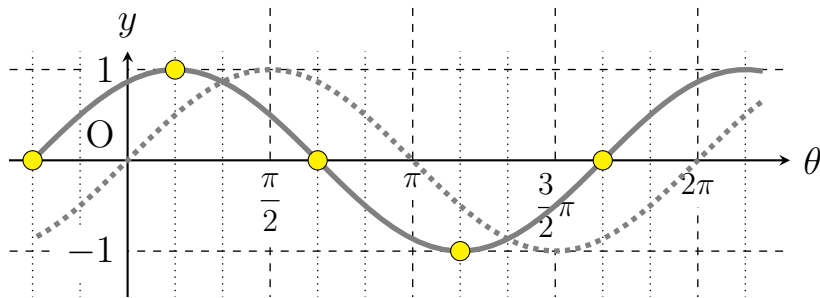
θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1		0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		-1		0	



問 2

$$(2) \quad y = \sin\left(\theta + \frac{\pi}{3}\right) \rightarrow y = \sin\left(\theta + \frac{2\pi}{6}\right)$$

θ	$-\frac{2}{6}\pi$	0	$\frac{1}{6}\pi$	$\frac{3}{6}\pi$	$\frac{4}{6}\pi$	$\frac{6}{6}\pi$	$\frac{7}{6}\pi$	$\frac{9}{6}\pi$	$\frac{10}{6}\pi$	$\frac{12}{6}\pi$
$\sin \theta$		0		1		0		-1		0
$\sin\left(\theta + \frac{2\pi}{6}\right)$	0		1		0		-1		0	



今回の学習目標

波の変化

- $y = a \sin(\theta - p)$ の a と p は波をどう変えるか？

