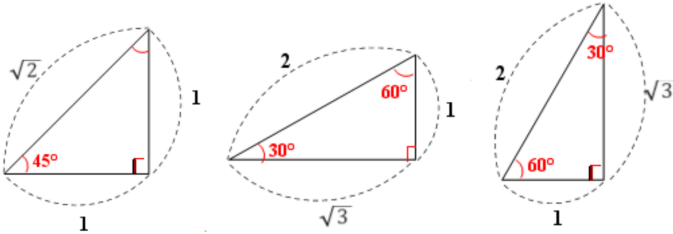


- ◆ 교과서 문제 풀이입니다.
- ◆ 문제풀이 및 해설은 오른쪽 qr코드와 같습니다.
- ◆ 함께 열심히 해 봅시다.

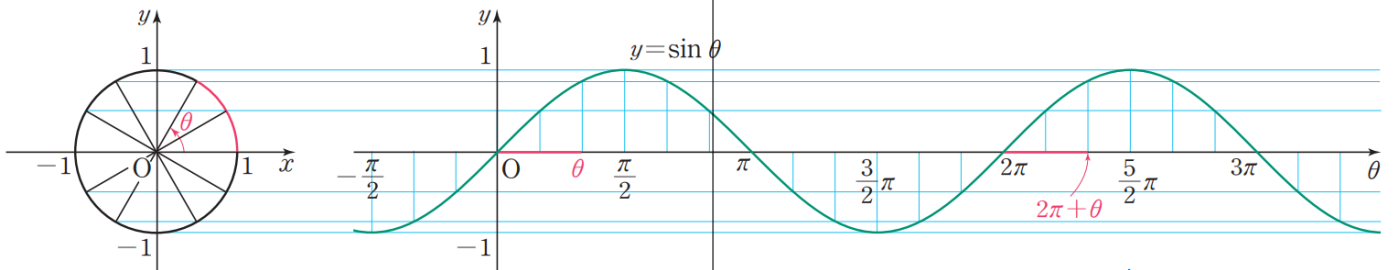


### 개념 1.



### 개념 2. 사인 함수의 그래프

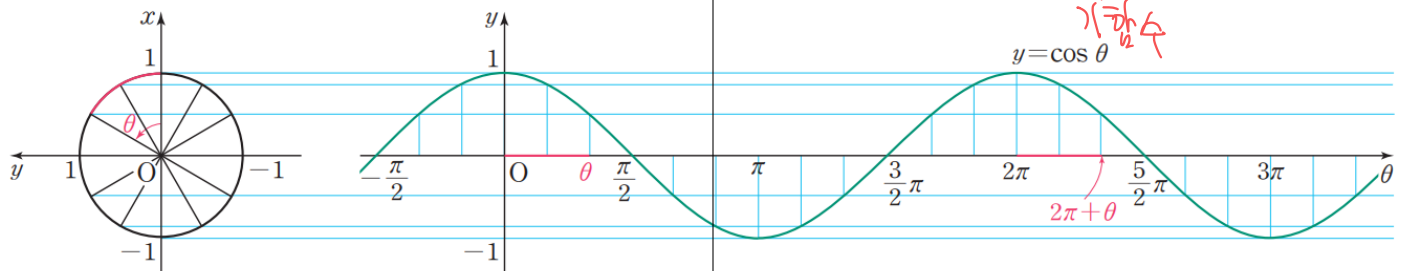
$y = \sin \theta$ 의 그래프



1. 원점 대칭(기함수),  $\sin(-x) = -\sin x$  싸원기
2. 주기 =  $2\pi$
3. 최댓값 1, 최솟값 -1

### 개념 3. 코사인 함수의 그래프

$y = \cos \theta$ 의 그래프

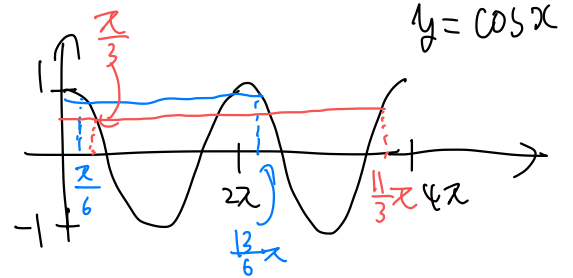


1. y축 대칭(우함수),  $\cos(-x) = \cos x$  코와우
2. 주기 =  $2\pi$
3. 최댓값 1, 최솟값 -1

문제 1. 사인함수, 코사인함수의 그래프의 성질을 이용하여 다음 삼각함수의 값을 구하시오.

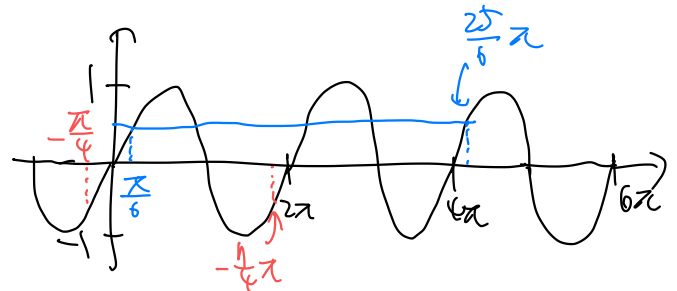
(1)  $\cos \frac{13}{6}\pi$    (2)  $\sin \frac{25}{6}\pi$    (3)  $\sin \frac{7}{4}\pi$    (4)  $\cos \frac{11}{3}\pi$

(1)  $\cos \frac{13}{6}\pi = \cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$



(4)  $\cos \frac{11}{3}\pi = \cos \frac{\pi}{3} = \frac{1}{2}$

(2)  $\sin \frac{25}{6}\pi = \sin \frac{\pi}{6} = \frac{1}{2}$



(3)  $\sin \frac{7}{4}\pi = \sin(-\frac{\pi}{4}) = -\sin \frac{\pi}{4} = -\frac{\sqrt{2}}{2}$

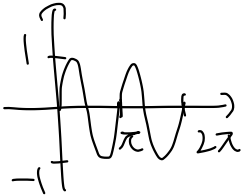
↗ 반경수

다음 함수의 주기와 치역을 구하고, 그 그래프를 그리시오.

예제 1.  $y = \sin 2x$

$$주기 = \frac{2\pi}{2} = \pi$$

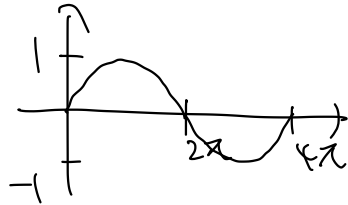
$$치역 = \{y \mid -1 \leq y \leq 1\}$$



$$y = \sin \frac{1}{2}x$$

$$주기 = \frac{2\pi}{\frac{1}{2}} = 4\pi$$

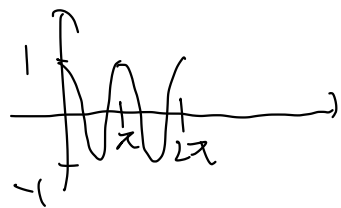
$$치역 = \{y \mid -1 \leq y \leq 1\}$$



문제 2. (1)  $y = \cos 2x$

$$주기 = \frac{2\pi}{2} = \pi$$

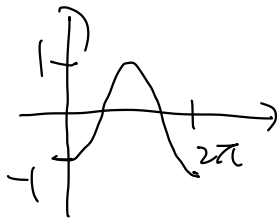
$$치역 = \{y \mid -1 \leq y \leq 1\}$$



$$y = -\cos x$$

$$주기 = 2\pi$$

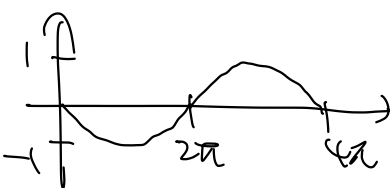
$$치역 = \{y \mid -1 \leq y \leq 1\}$$



$$(2) y = -\sin \frac{x}{2}$$

$$주기 = \frac{2\pi}{\frac{1}{2}} = 4\pi$$

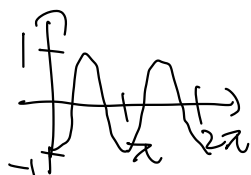
$$치역 = \{y \mid -1 \leq y \leq 1\}$$



$$y = -\cos 2x$$

$$주기 = \frac{2\pi}{2} = \pi$$

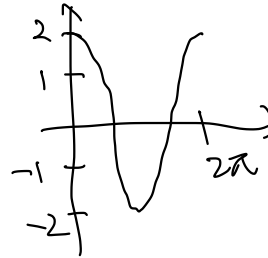
$$치역 = \{y \mid -1 \leq y \leq 1\}$$



예제 2.  $y = 2 \cos x$

$$주기 = 2\pi$$

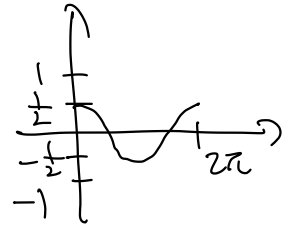
$$치역 = \{y \mid -2 \leq y \leq 2\}$$



$$y = \frac{1}{2} \cos x$$

$$주기 = 2\pi$$

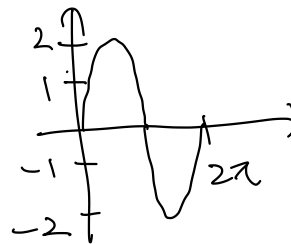
$$치역 = \{y \mid -\frac{1}{2} \leq y \leq \frac{1}{2}\}$$



문제 3. (1)  $y = 2 \sin x$

$$주기 = 2\pi$$

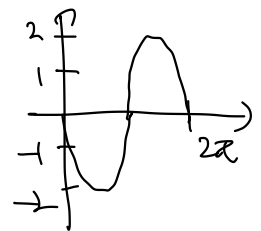
$$치역 = \{y \mid -2 \leq y \leq 2\}$$



$$y = -2 \sin x$$

$$주기 = 2\pi$$

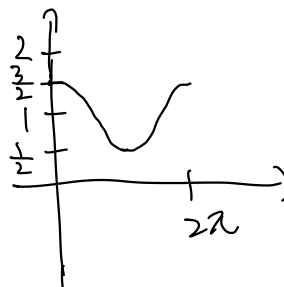
$$치역 = \{y \mid -2 \leq y \leq 2\}$$



$$(2) y = \frac{1}{2} \cos x + 1$$

$$주기 = 2\pi$$

$$치역 = \{y \mid \frac{1}{2} \leq y \leq \frac{3}{2}\}$$



$$y = \cos\left(\frac{\pi}{2} + x\right)$$

$$주기 = 2\pi$$

$$치역 = \{y \mid -1 \leq y \leq 1\}$$

