

三角関数とその微分 (微分積分基礎演習, 担当: 天野勝利) 2007年10月11日

1. 次の値を求めよ.

(1) $\sin \frac{\pi}{4}$ (2) $\cos 0$ (3) $\cos \left(-\frac{\pi}{4}\right)$

(4) $\tan \frac{3\pi}{4}$ (5) $\sin 0$ (6) $\sin \frac{11\pi}{6}$

(7) $\cos \left(-\frac{\pi}{3}\right)$ (8) $\tan 3\pi$ (9) $\cos \frac{5\pi}{6}$

(10) $\sin \frac{5\pi}{3}$ (11) $\cos^2 \frac{7\pi}{6}$ (12) $\sin^2 \left(-\frac{\pi}{3}\right)$

2. $\frac{\pi}{2} < \alpha < \pi$, $-\frac{\pi}{2} < \beta < 0$ で, $\sin \alpha = \frac{4}{5}$, $\cos \beta = \frac{12}{13}$ のとき, 次の値を求めよ.

(1) $\sin(\alpha - \beta) =$

(2) $\cos(\alpha + \beta) =$

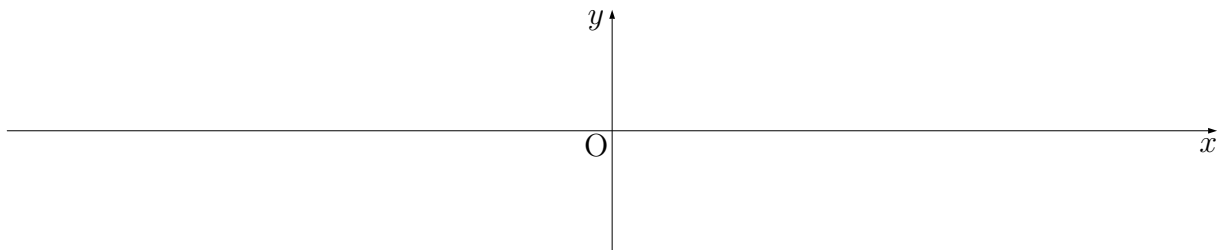
3. $\frac{\pi}{2} < \alpha < \pi$ で, $\sin \alpha = \frac{3}{5}$ のとき, 次の値を求めよ.

(1) $\sin 2\alpha =$

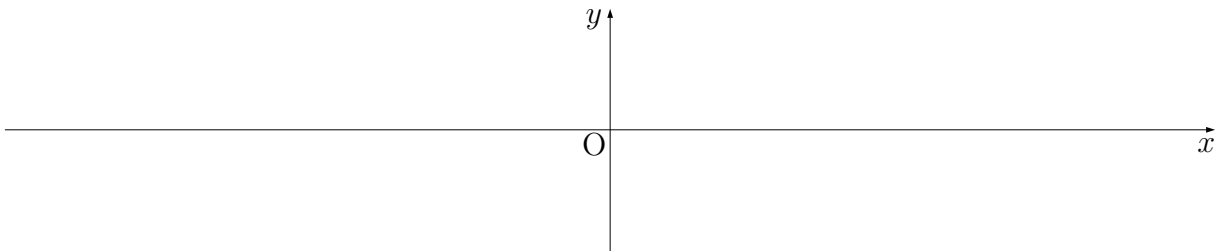
(2) $\cos^2 \frac{\alpha}{2} =$

4. 次の関数のグラフの概形を, $-4\pi < x < 4\pi$ の範囲で描け.

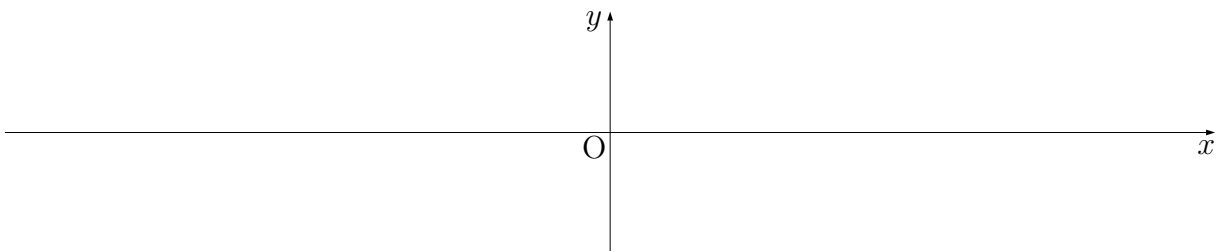
(1) $y = \sin \left(x + \frac{\pi}{3}\right)$



$$(2) y = \sin\left(2x - \frac{2\pi}{3}\right)$$



$$(3) y = \sin\left(\frac{1}{2}x + \frac{2\pi}{3}\right)$$



5. 次の関数を微分せよ.

$$(1) y = \sin 3x$$

$$y' =$$

$$(2) y = \cos 5x$$

$$y' =$$

$$(3) y = \tan 4x$$

$$y' =$$

$$(4) y = \sin(-2x)$$

$$y' =$$

$$(5) y = \cos(-4x)$$

$$y' =$$

$$(6) y = \tan(-3x)$$

$$y' =$$

$$(7) y = \sin \frac{x}{4}$$

$$y' =$$

$$(8) y = \cos \frac{x}{2}$$

$$y' =$$

$$(9) y = \tan \frac{x}{5}$$

$$y' =$$

学籍番号	氏名