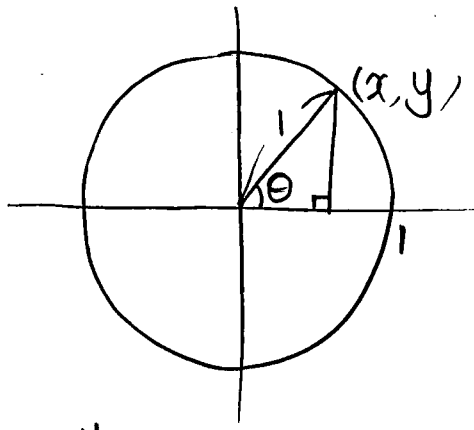
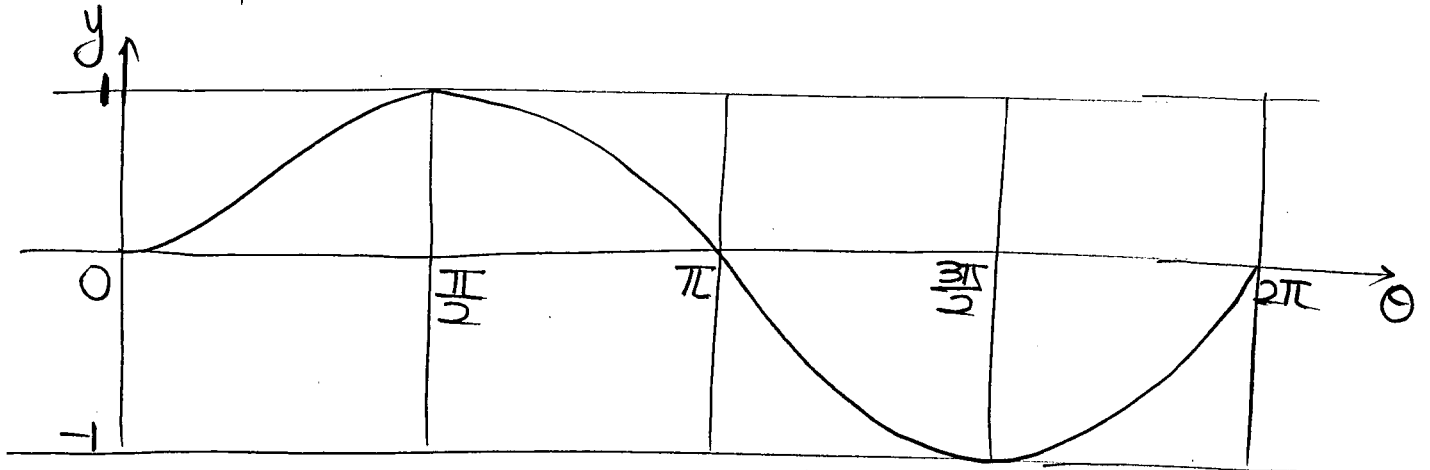




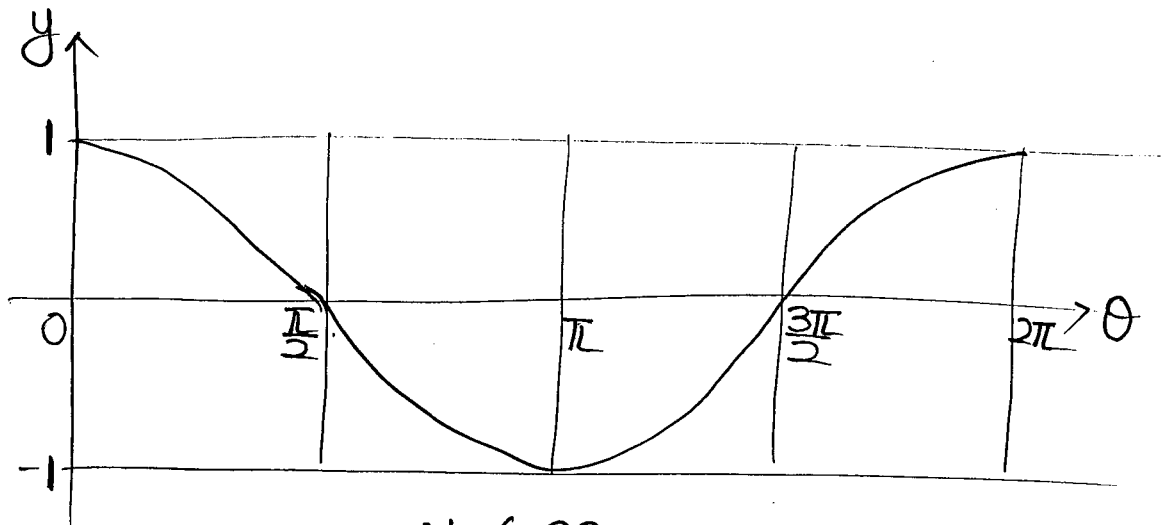
$$x = \cos \theta$$

$$y = \sin \theta$$



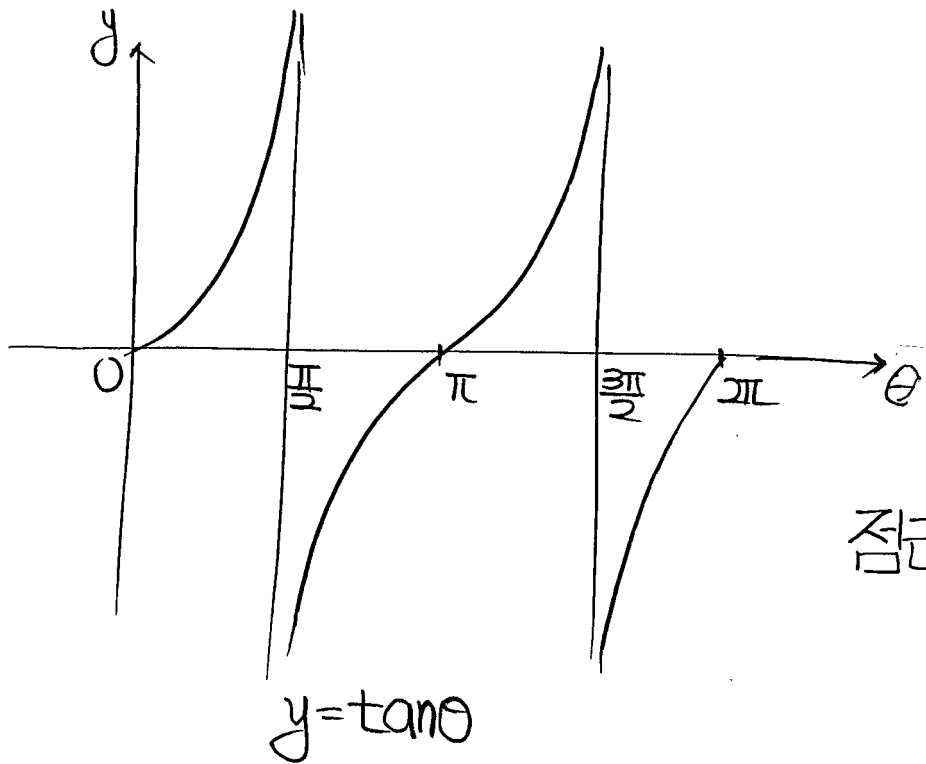
$$y = \sin \theta$$

$M=1$, $m=-1$, 주기: 2π , 원점에 대칭



$$y = \cos \theta$$

$M=1$, $m=-1$, 주기: 2π , y축에 대칭



M : 없다

m : 없다

주기: π

원점에 대칭

점근선 $x = n\pi + \frac{\pi}{2}$
(n 은 정수)

* 주기함수

$$f(x+p) = f(x)$$

최소의 양수: p (주기)

P274

EX) $y = 2\sin x$

치역: $\{y \mid -2 \leq y \leq 2\}$

주기: 2π

P275

EX) $y = \cos 2x$

치역: $\{y \mid -1 \leq y \leq 1\}$

주기: π

P277

EX) $y = \tan \frac{x}{2}$

주기: 2π

$\frac{x}{2} = n\pi + \frac{\pi}{2}$

점근선

$x = 2n\pi + \pi$ (n 은 정수)

P281

EX) (1) $y = \frac{1}{2} \sin(x + \frac{\pi}{4}) + 1$

$M = \frac{3}{2}, m = \frac{1}{2}$ 주기: 2π

(2) $y = 2\cos(3x - \pi) = 2\cos(3(x - \frac{\pi}{3}))$

$M = 2, m = -2$ 주기: $\frac{2\pi}{3}$

P282

$y = 2\tan(\frac{x}{2} - \frac{\pi}{6})$

M : 없다, m : 없다, 주기: 2π

P283

11

(1) $y = 3\sin x$ 치역: $\{y \mid -3 \leq y \leq 3\}$ 주기: 2π

(2) $y = -2\cos x + 1$ 치역: $\{y \mid -1 \leq y \leq 3\}$ 주기: 2π

21

(1) $y = 4\sin \frac{x}{2}$ 치역: $\{y \mid -4 \leq y \leq 4\}$ 주기: 4π

(2) $y = \cos(2x + \frac{\pi}{2})$ 치역: $\{y \mid -1 \leq y \leq 1\}$ 주기: π

31

$y = a \cos bx$ $a = 3$ 주기: $\frac{2\pi}{b} = \pi$ $b = 2$

P285

1-11

(1) $y = \frac{1}{2}\sin x$ $M = \frac{1}{2}$, $m = -\frac{1}{2}$, 주기: 2π

(2) $y = \cos \frac{1}{3}x$ $M = 1$, $m = -1$, 주기: 6π

1-21

$y = 3\sin 2x$ $a = \pi$

$y = \frac{1}{2}\cos 3x$ $b = \frac{2\pi}{3}$

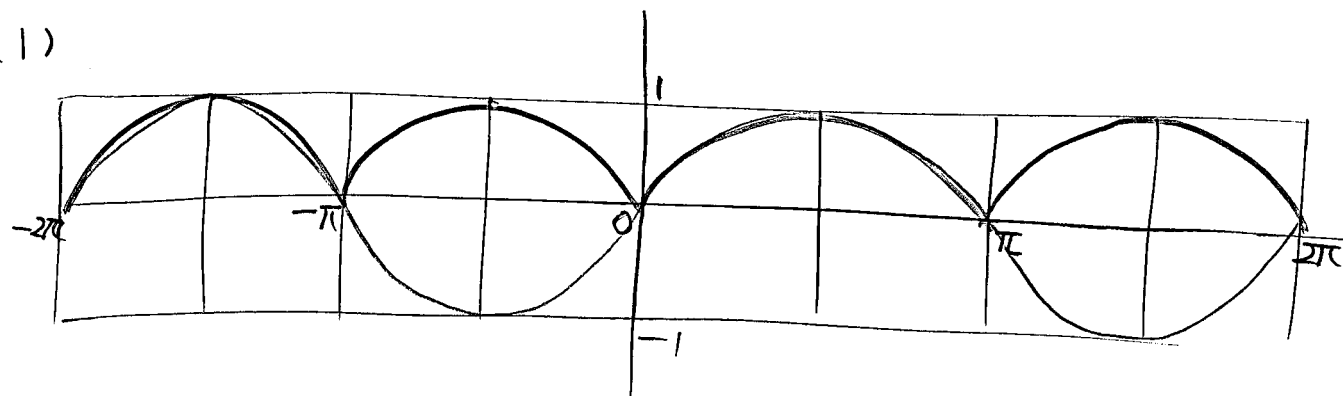
$y = 2\tan \frac{x}{2}$ $c = 2\pi$

$b < a < c$

$\boxed{c > a > b}$

1-3]

(1)



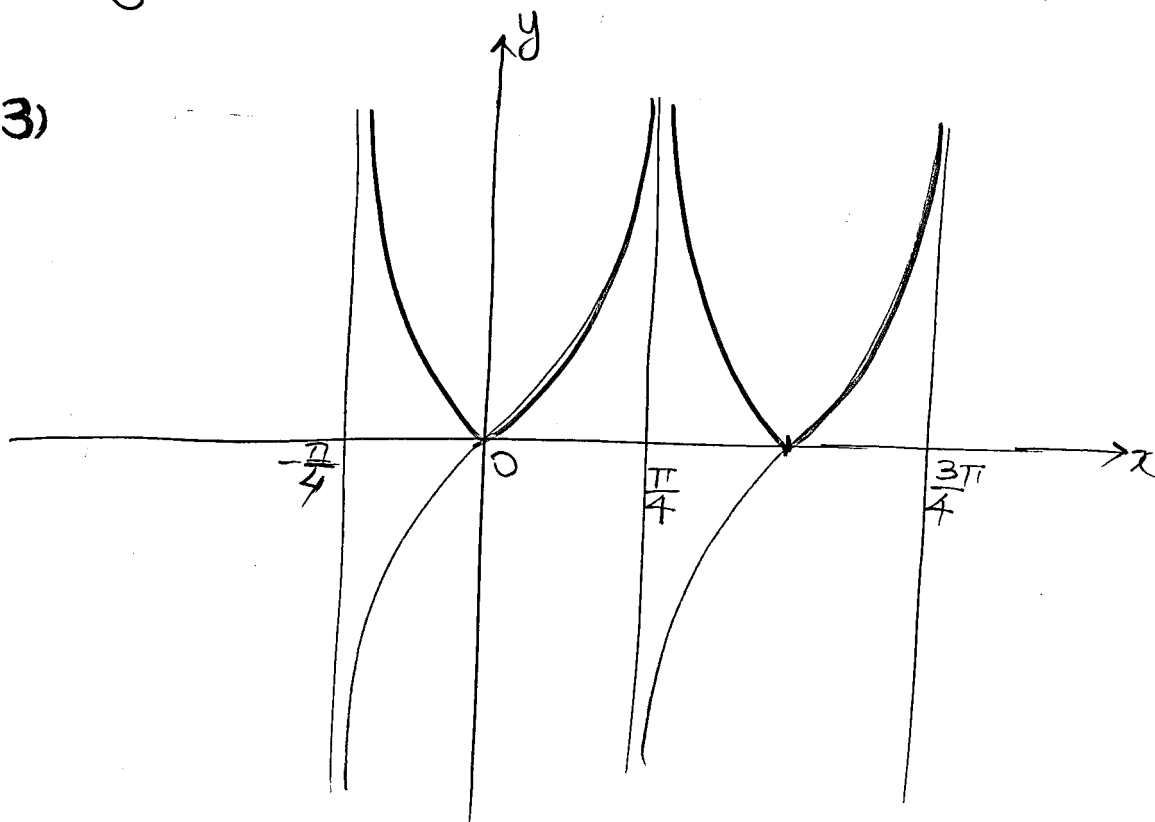
$M=1, m=0$ 주기: π

(2)

$y = \cos|x| = \cos x$

$M=1, m=-1$, 주기: 2π

(3)



M : 없다, $m=0$, 주기: $\frac{\pi}{2}$

2-11

$$(1) y = 2\cos(\frac{1}{2}x - \frac{\pi}{2}) - 1 \quad M=1, m=-3 \text{ 주기: } 4\pi$$

$$(2) y = \tan(2x + \frac{\pi}{2}) \quad M: \text{없음}, m: \text{없음}, \text{주기: } \frac{\pi}{2}$$

2-21

$$(1) y = 3\sin(2x - \pi) = 3\sin\{2(x - \frac{\pi}{2})\}$$

$$\square = \frac{\pi}{2} \quad \text{주기: } \pi$$

$$(2) y = 2\cos(\frac{x}{2} - \frac{\pi}{4}) = 2\cos\{\frac{\pi}{2}(x - \frac{\pi}{2})\} + 1$$

$$x\text{축: } \frac{\pi}{2}, y\text{축: } 1 \quad \text{주기: } 4\pi$$

2-31

$$f(x) = 3\cos(2x - \frac{\pi}{3}) + 1 = 3\cos\{2(x - \frac{\pi}{6})\} + 1$$

$$\textcircled{A} \text{ 주기: } \pi$$

$$\textcircled{B} M=4, m=-2$$

$$\textcircled{C} x = \frac{\pi}{6} \text{ 에 대하여 미침}$$

3-11

$$y = a\cos(bx + c)$$

$$M=a, m=-a \quad a=4$$

$$(\text{주기}) = \frac{2\pi}{b} = \pi \quad b=2$$

$$y = 4\cos\{2(x - \frac{\pi}{6})\} = 4\cos(2x - \frac{\pi}{3})$$

$$c = -\frac{\pi}{3}$$

3-2]

$$(1) f(x) = a \sin bx + c$$

$$M = a + c = 4$$

$$m = -a + c = -2$$

$$a = 3, c = 1 \quad (\text{주기}) = \frac{2\pi}{b} = \pi \quad b = 2$$

$$abc = 6$$

$$(2) f(x) = a \cos bx + c$$

$$M = a + c = 3$$

$$m = -a + c = -1$$

$$a = 2, c = 1, \quad \text{주기} = \frac{2\pi}{b} = \frac{\pi}{2}$$

$$b = 4$$

$$a + b + c = 7$$

3-3] - 4\pi

$$y = a \cos(bx - c) + d$$

$$M = a + d = 1$$

$$m = -a + d = -3$$

$$a = 2, d = -1$$

$$(\text{주기}) = \frac{2\pi}{b} = \pi \quad b = 2$$

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

$$y = 2 \cos(2x - \pi) - 1$$

$$c = \pi$$

$$abcd = -4\pi$$

4-1]

$$(1) \cos x = t \quad (-1 \leq t \leq 1)$$

$$f(t) = 1 - t^2 + 2t - 1$$

$$= -t^2 + 2t = -(t-1)^2 + 1$$

$$M = f(1) = 1$$

$$m = f(-1) = -3$$

$$(2) \sin x = t \quad (-1 \leq t \leq 1)$$

$$\begin{aligned} f(t) &= t^2 - (1 - t^2) + 2t \\ &= 2t^2 + 2t - 1 = 2\left(t + \frac{1}{2}\right)^2 - \frac{3}{2} \end{aligned}$$

$$\begin{aligned} M &= f(1) = 3 \\ m &= f\left(-\frac{1}{2}\right) = -\frac{3}{2} \end{aligned}$$

4-215

$$\cos x = t \quad (-1 \leq t \leq 1)$$

$$\begin{aligned} f(t) &= a(1 - t^2) - at + b \\ &= -at^2 - at + a + b \\ &= -\left(t + \frac{1}{2}\right)^2 + \frac{5}{4}a + b \end{aligned}$$

$$M = f\left(-\frac{1}{2}\right) = \frac{5a}{4} + b = 6$$

$$-m = f(1) = -a + b = 3$$

$$\begin{aligned} \frac{9a}{4} &= 9 \\ a &= 4, b = 1 \end{aligned}$$

$$\boxed{a + b = 5}$$

4-312

$$x^2 - \sin \theta \cdot x + \cos \theta - 2 = 0 \quad \text{Find } \alpha, \beta$$

$$\alpha + \beta = \sin \theta, \quad \alpha\beta = \cos \theta - 2$$

$$\begin{aligned} \alpha^2 + \beta^2 &= (\alpha + \beta)^2 - 2\alpha\beta \\ &= \sin^2 \theta - 2(\cos \theta - 2) \\ &= 1 - t^2 - 2t + 4 = f(t) \end{aligned}$$

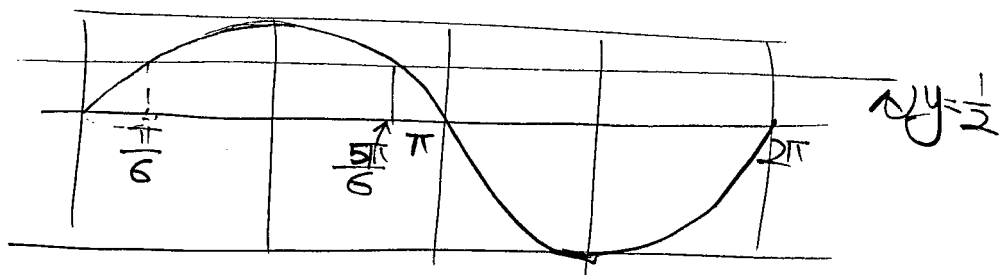
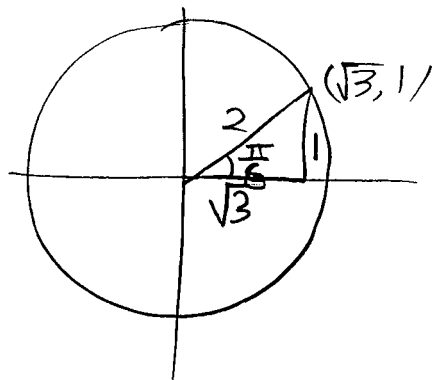
$$f(t) = -(t + 1)^2 + 6$$

$$m = f(1) = -4 + 6 = 2$$

$$\cos \theta = t \quad (-1 \leq t \leq 1)$$

P293

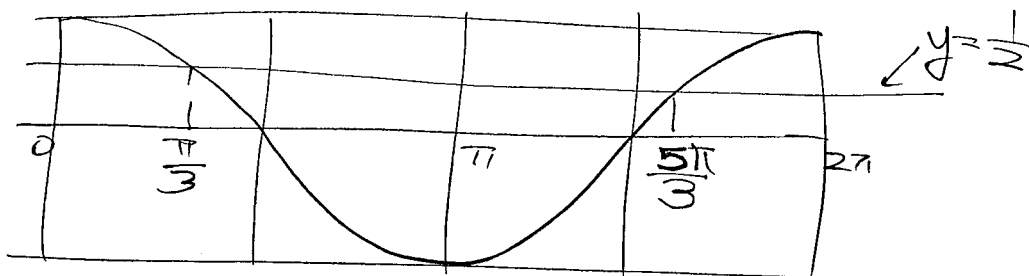
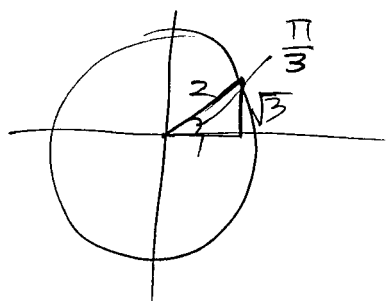
EX) $\sin x = \frac{1}{2} \quad (0 \leq x < 2\pi)$



$x = \frac{\pi}{6} \quad \text{or} \quad x = \frac{5\pi}{6}$

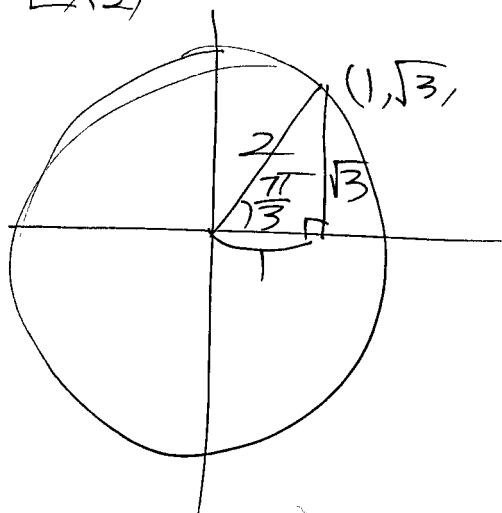
P294

EX1) $\cos x = \frac{1}{2}$



$x = \frac{\pi}{3} \quad \text{or} \quad x = \frac{5\pi}{3}$

EX2)

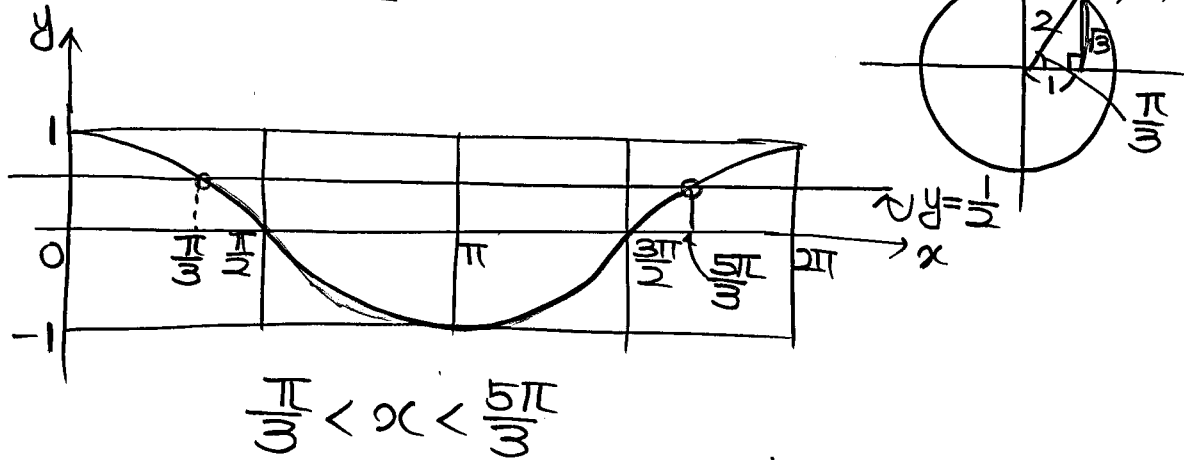


$\tan x = \sqrt{3}$

$x = \frac{\pi}{3} \quad \text{or} \quad x = \frac{4\pi}{3}$

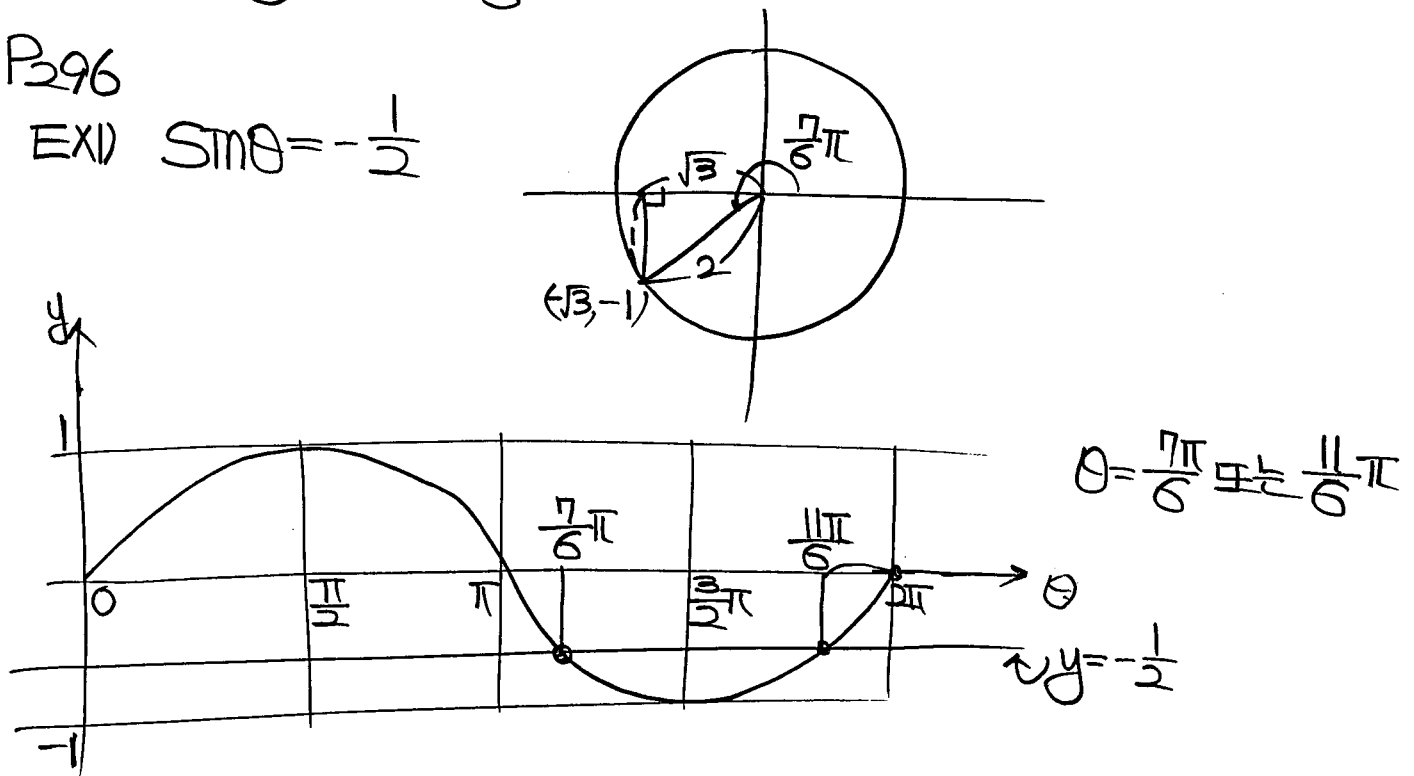
P295

EX) $\cos x < \frac{1}{2} \quad (0 \leq x < 2\pi)$



P296

EX1) $\sin \theta = -\frac{1}{2}$



$\theta = \frac{7\pi}{6} \text{ 또는 } \frac{11\pi}{6}$

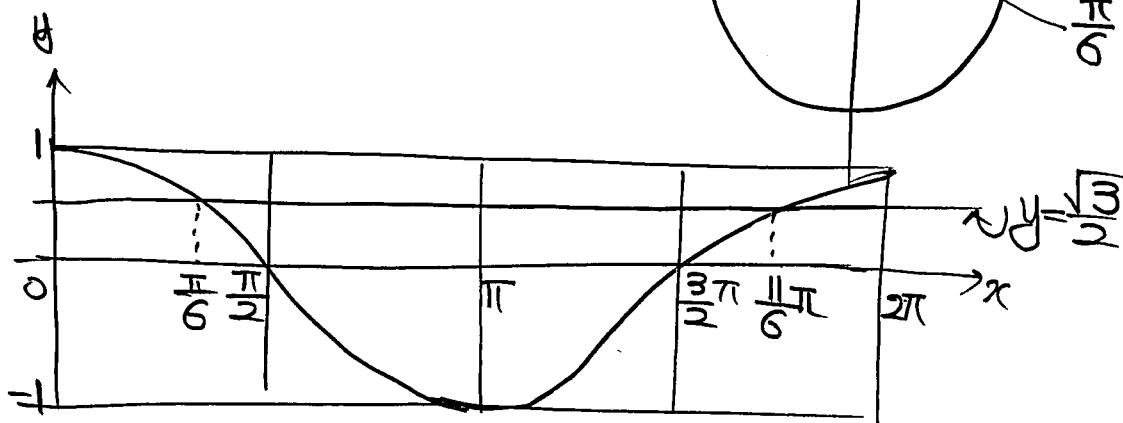
EX2) $\sin \theta > -\frac{1}{2} \quad (0 \leq \theta < 2\pi)$

$0 \leq \theta < \frac{7\pi}{6} \text{ 또는 } \frac{11\pi}{6} < \theta < 2\pi$

B97

11

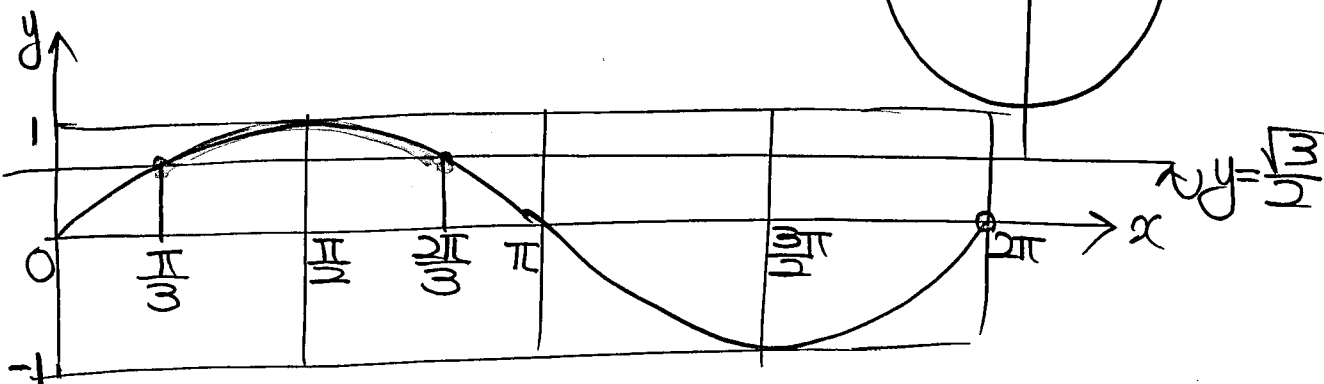
$$\cos x = \frac{\sqrt{3}}{2}$$



$$x = \frac{\pi}{6} \text{ 또는 } x = \frac{11\pi}{6}$$

21

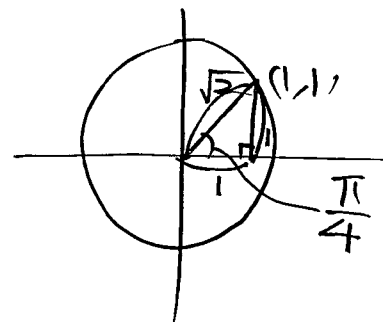
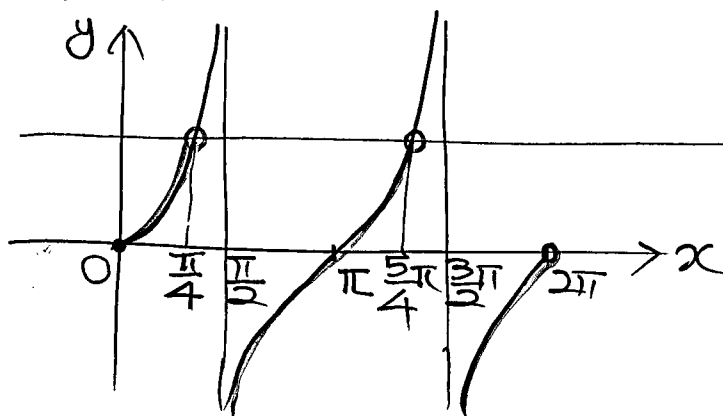
$$\sin x \geq \frac{\sqrt{3}}{2} \quad (0 \leq x < 2\pi)$$



$$\frac{\pi}{3} \leq x \leq \frac{2\pi}{3}$$

31

$$\tan x < 1 \quad (0 \leq x < 2\pi)$$



$$0 \leq x < \frac{\pi}{4}$$

$$\text{또는 } \frac{\pi}{2} < x < \frac{5\pi}{4}$$

$$\text{또는 } \frac{3\pi}{2} < x < 2\pi$$

P299

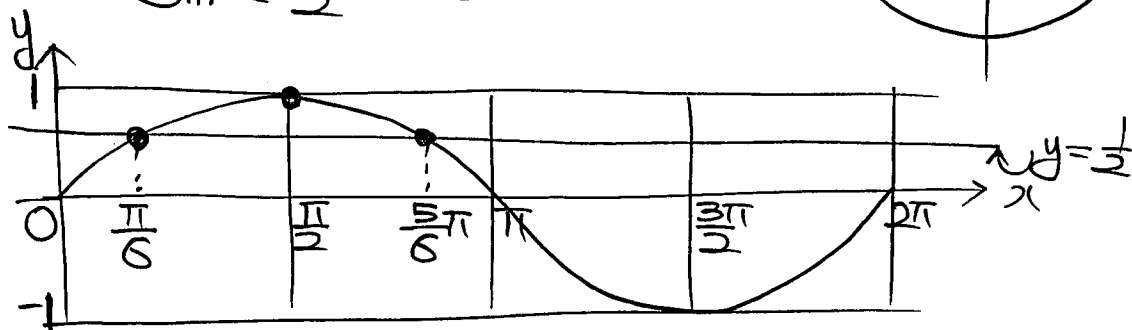
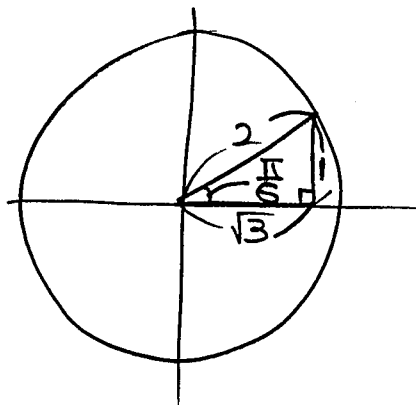
5-11 $(0 \leq x < 2\pi)$

$$(1) 2(1 - \sin^2 x) + 3\sin x - 3 = 0$$

$$2\sin^2 x - 3\sin x + 1 = 0$$

$$(2\sin x - 1)(\sin x - 1) = 0$$

$$\sin x = \frac{1}{2} \text{ 또는 } \sin x = 1$$



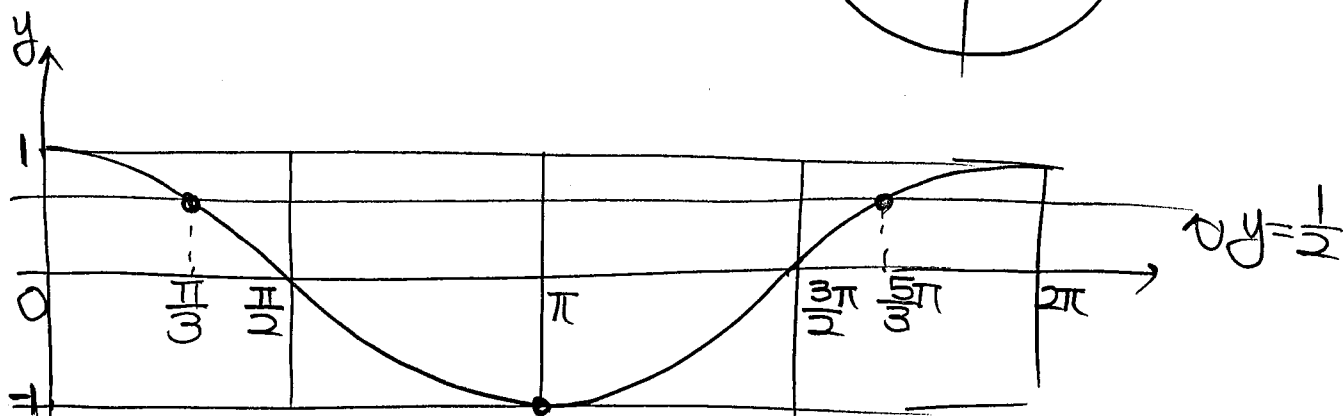
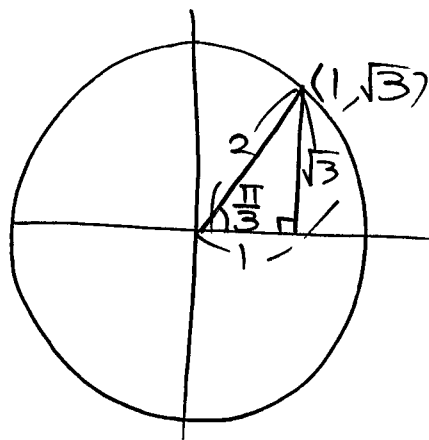
$$x = \frac{\pi}{6} \text{ 또는 } x = \frac{\pi}{2} \text{ 또는 } x = \frac{5\pi}{6}$$

$$(2) 2(1 - \cos^2 x) = \cos x + 1$$

$$2\cos^2 x + \cos x - 1 = 0$$

$$(2\cos x - 1)(\cos x + 1) = 0$$

$$\cos x = \frac{1}{2} \text{ 또는 } \cos x = -1$$



$$x = \frac{\pi}{3} \text{ 또는 } x = \pi \text{ 또는 } x = \frac{5\pi}{3}$$

5-21

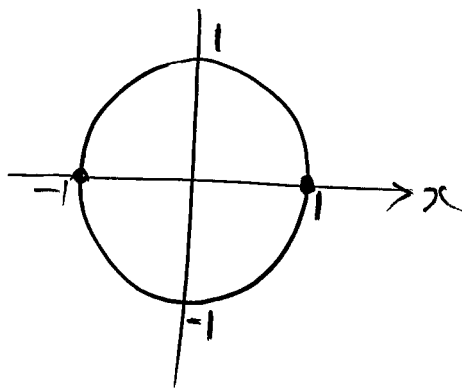
$$(1) \sin x = \frac{\sin x}{\cos x}$$

$$\sin x \cos x - \sin x = 0$$

$$\sin x \cdot (\cos x - 1) = 0$$

$$\sin x = 0 \text{ 或 } \cos x = 1$$

$$x = 0 \text{ 或 } x = \pi$$

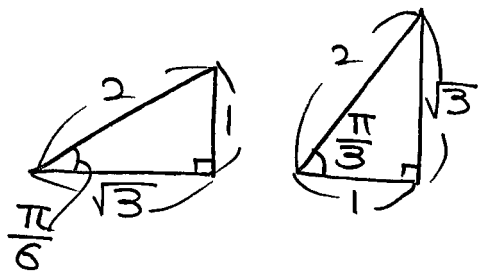


$$(2) \sqrt{3} \tan^2 x - 4 \tan x + \sqrt{3} = 0$$

$$(\sqrt{3} \tan x - 1)(\tan x - \sqrt{3}) = 0$$

$$\tan x = \frac{1}{\sqrt{3}} \text{ 或 } \tan x = \sqrt{3}$$

$$x = \frac{\pi}{6} \text{ 或 } x = \frac{7\pi}{6} \text{ 或 } x = \frac{\pi}{3} \text{ 或 } x = \frac{4\pi}{3}$$



5-31

$$\frac{\alpha + \beta}{2} = \frac{\pi}{2}$$

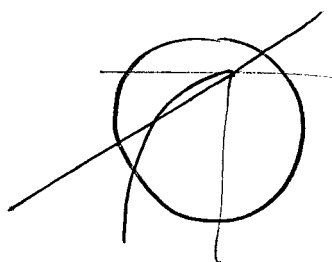
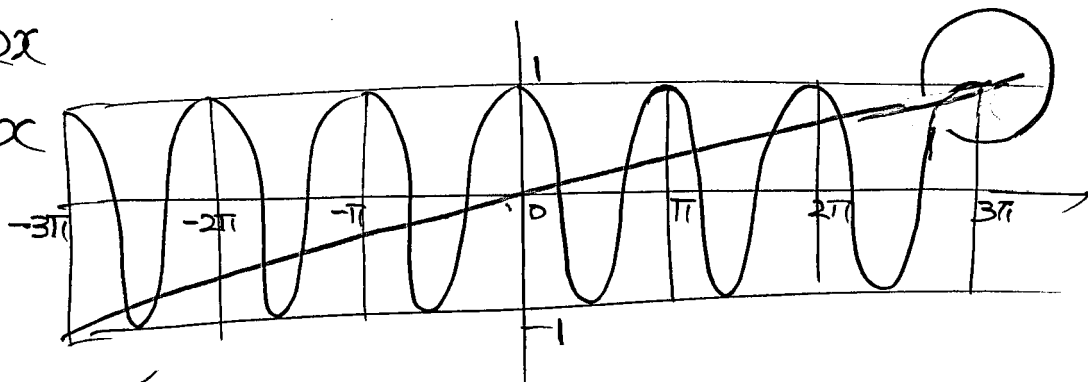
$$\alpha + \beta = \pi, \quad r = 2\pi + \alpha$$

$$\sin \alpha = \frac{3}{5}$$

$$\sin(\alpha + \beta + r) = \sin(3\pi + \alpha) = \sin(\pi + \alpha) = -\sin \alpha = -\frac{3}{5}$$

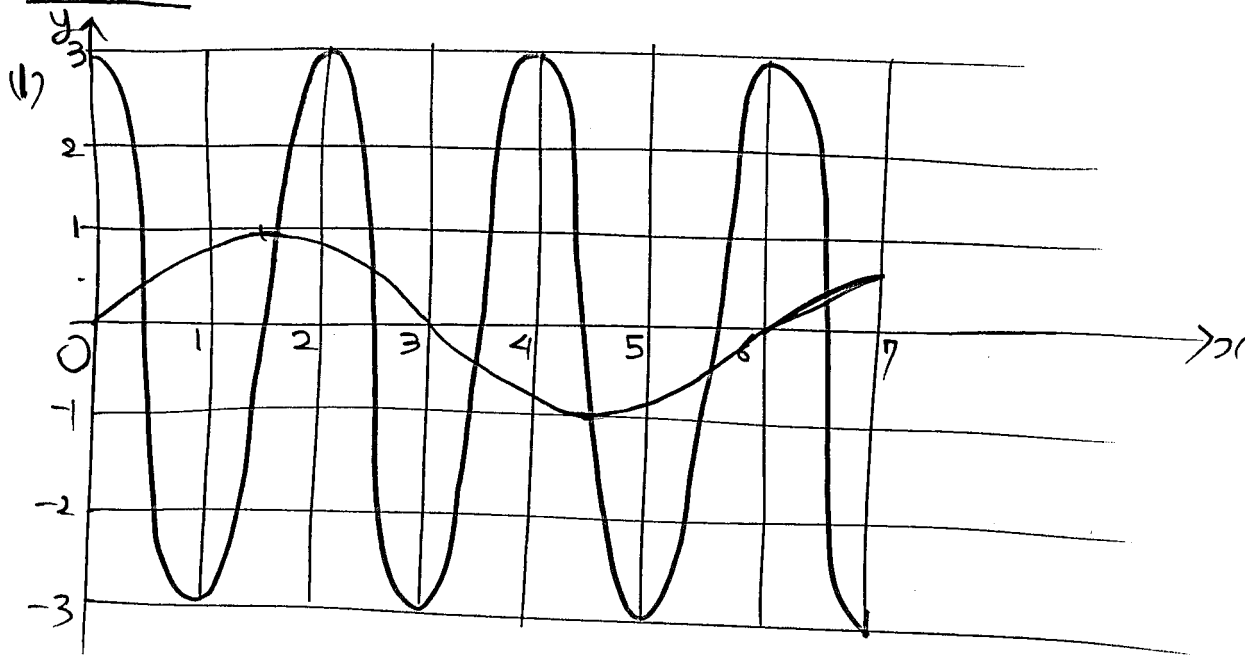
6-1

$$\begin{cases} y = \cos 2x \\ y = \frac{1}{3\pi} x \end{cases}$$



1374

6-2

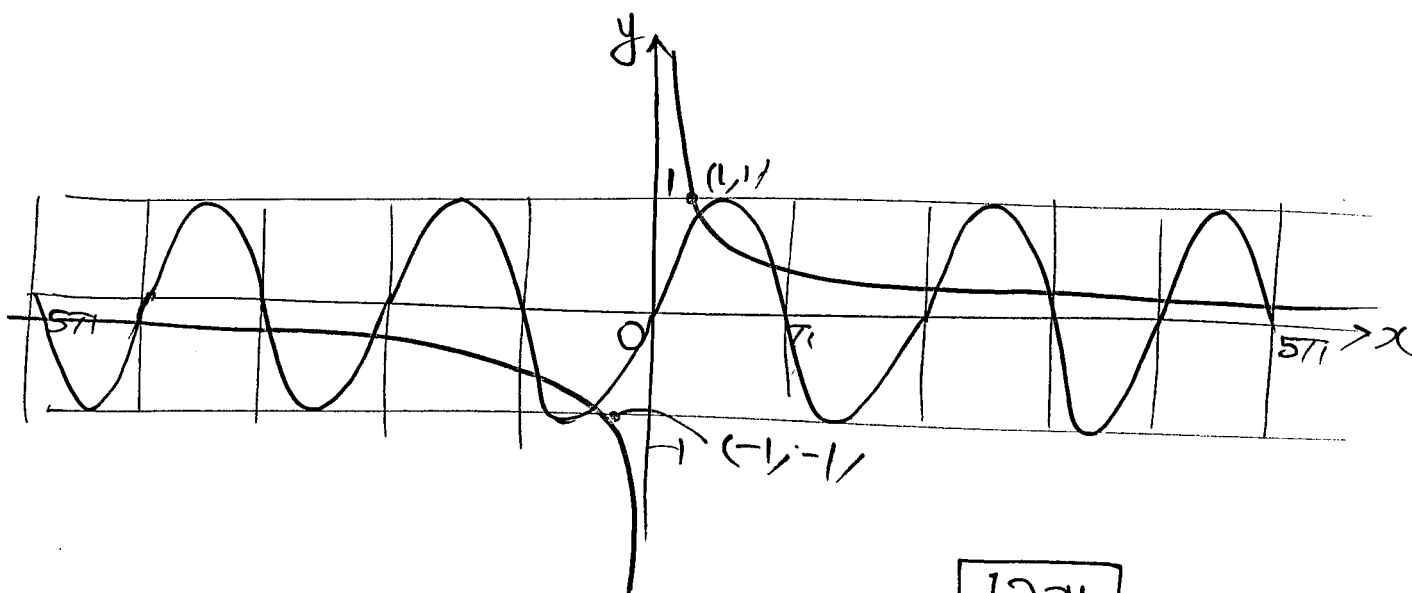


$$\begin{cases} y = 3 \sin(\pi x) & M=3, m=-3, \text{ 주기: } 2 \\ y = \sin(\frac{\pi}{3}x) & M=1, m=-1, \text{ 주기: } 6 \end{cases}$$

7개

2)

$$\begin{cases} y = \sin x & (x \neq 0) \\ y = \frac{1}{x} \end{cases}$$

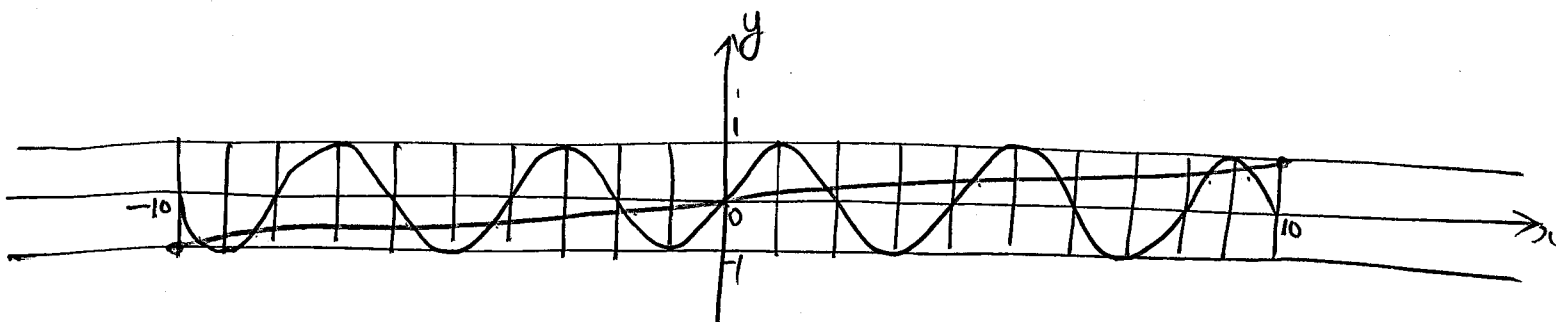


12개

6-311

$$y = \sin\left(\frac{\pi}{5}x\right) \quad M=1, m=-1, \text{주기: } 4$$

$$y = \frac{1}{10}x$$



$$a=11, b=0, c=0 \quad a+b+c=11$$

7-11

$$(1) 2(1 - \sin^2 x) + 5\sin x - 4 > 0$$

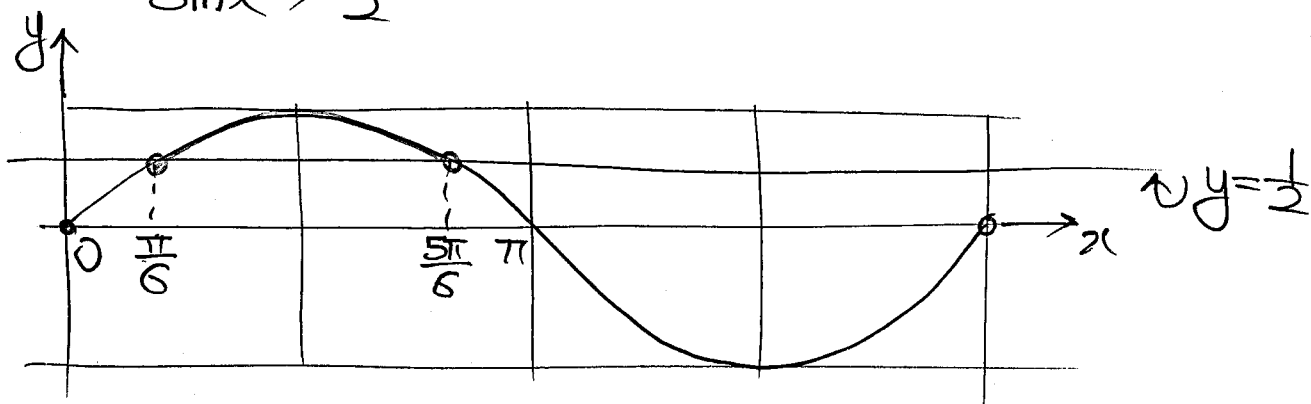
$$2\sin^2 x - 5\sin x + 2 < 0$$

$$(2\sin x - 1)(\sin x - 2) < 0$$

< 0

$$2\sin x - 1 > 0$$

$$\sin x > \frac{1}{2}$$



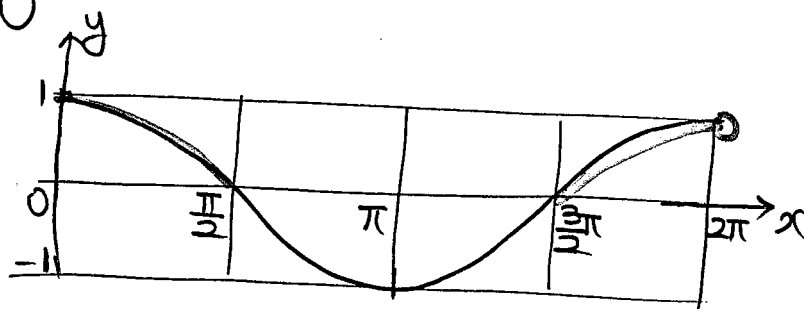
$$\frac{\pi}{6} < x < \frac{5\pi}{6}$$

$$(2) 1 - \cos^2 x + \cos x - 1 \geq 0$$

$$\cos^2 x - \cos x \leq 0$$

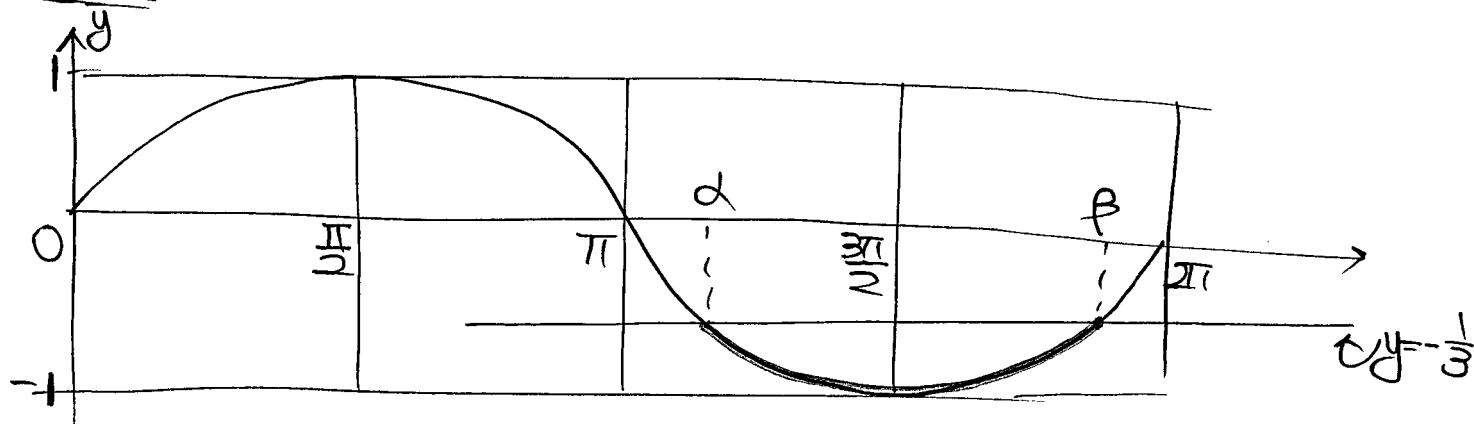
$$\cos x \cdot (\cos x - 1) \leq 0$$

$$0 \leq \cos x \leq 1$$



$$0 \leq x \leq \frac{\pi}{2} \text{ 또는 } \frac{3\pi}{2} \leq x < 2\pi$$

$$\text{[7-2]} -\frac{\sqrt{2}}{2}$$

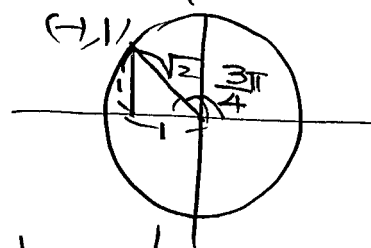


$$\sin x \leq -\frac{1}{3}$$

$$\frac{\alpha + \beta}{2} = \frac{3\pi}{2}$$

$$\alpha + \beta = 3\pi$$

$$\cos \frac{\alpha + \beta}{4} = \cos \frac{3\pi}{4} = -\frac{1}{\sqrt{2}} = -\frac{\sqrt{2}}{2}$$



$$\text{[7-3]}$$

$$x^2 - 2(\cos \theta) \cdot x + 2\cos \theta > 0$$

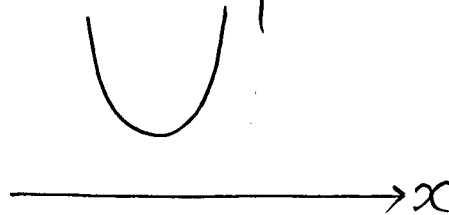
$$x^2 - 2(\cos \theta) \cdot x + 2\cos \theta = 0$$

$$D/4 = \cos^2 \theta - 2\cos \theta$$

$$= \cos \theta \cdot (\cos \theta - 2) < 0$$

$$\cos \theta > 0$$

$$\therefore 0 \leq \theta < \frac{\pi}{2} \text{ 또는 } \frac{3\pi}{2} < \theta < 2\pi$$

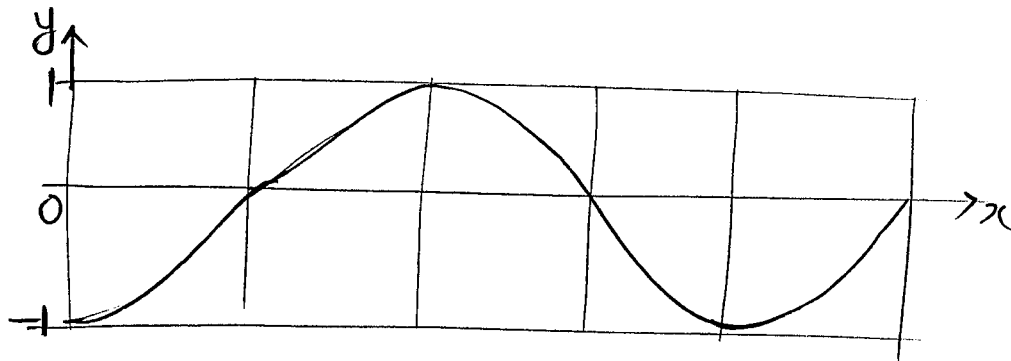


7-11 ④

$$\sin(a \cdot \frac{\pi}{4}) = 1 \quad a = 2$$

7-21

$$(7) = \frac{\pi}{2} \quad (4) = -\cos x$$



7-31 ④

$$\begin{aligned} a+b &= 5 & f(\frac{\pi}{3}) &= a \sin(\frac{\pi}{3}) + b = \frac{a}{2} + b = \frac{7}{2} \\ -\frac{a}{2} + b &= \frac{7}{2} \\ \hline \frac{a}{2} &= \frac{3}{2} & a &= 3, b = 2 \quad ab = 6 \end{aligned}$$

7-41

$$(1) f(x) = \cos(\sqrt{2}\pi x) \quad a = \sqrt{2}$$

$$(2) f(x) = |\sin 3x| \quad a = \frac{2\pi}{3} \times \frac{1}{2} = \frac{\pi}{3}$$

$$(3) f(x) = \tan(\pi x - \frac{\pi}{3}) \quad a = 1$$

7-51

$$f(x) = |\tan 2x|$$

$$\textcircled{1} \text{ 주기: } \frac{\pi}{2}$$

$$\textcircled{2} f(x) = |\tan(-2x)| = |-\tan 2x| = |\tan 2x| = f(x)$$

$$\cancel{\neq} 2x = n\pi + \frac{\pi}{2}$$

$$x = -\frac{n\pi}{2} + \frac{\pi}{4} \quad (n \text{ 은 정수})$$

$$\underline{7-6] \frac{7}{2}}$$

$$a+c=3$$

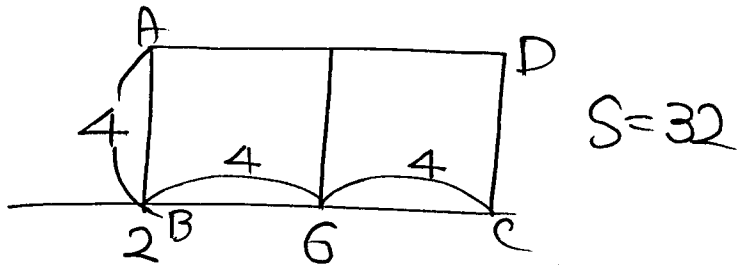
$$-a+c=-1$$

$$\frac{2\pi}{b}=4\pi$$

$$b=\frac{1}{2}$$

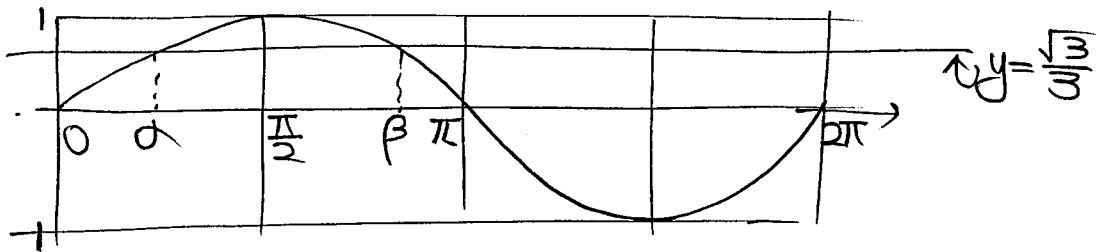
$$a+b+c=\frac{7}{2}$$

$$\underline{7-7]}$$



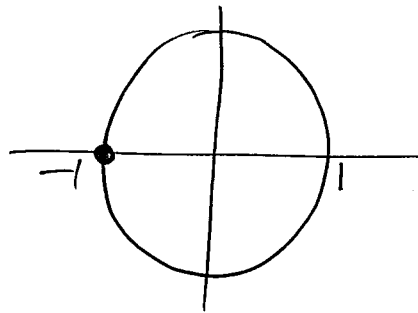
$$\underline{7-8]}$$

$$(1) \sin \alpha = \frac{\sqrt{3}}{3}$$

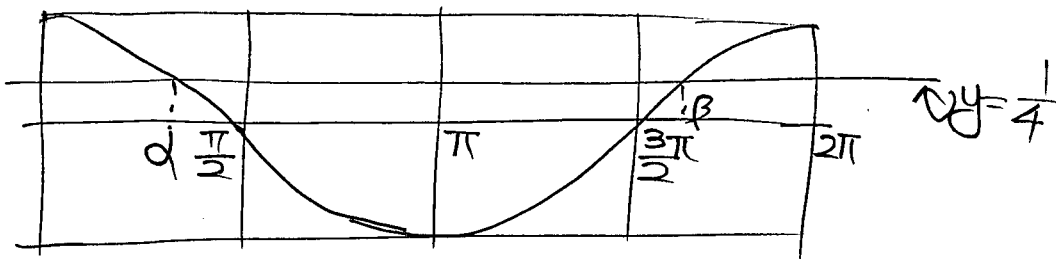


$$\frac{\alpha + \beta}{2} = \frac{\pi}{2} \quad \alpha + \beta = \pi$$

$$\cos(\alpha + \beta) = \cos \pi = -1$$



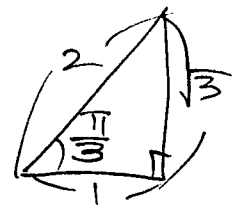
$$(2) \cos \alpha = \frac{1}{4}$$



$$\frac{\alpha + \beta}{2} = \pi$$

$$\theta = \alpha + \beta = 2\pi$$

$$\cos \frac{\theta}{2} = \cos \frac{\pi}{2} = \frac{1}{2}$$



7-91

$$(1) x^2 - (2\sqrt{2}\sin\theta)x - 3\cos\theta = 0$$

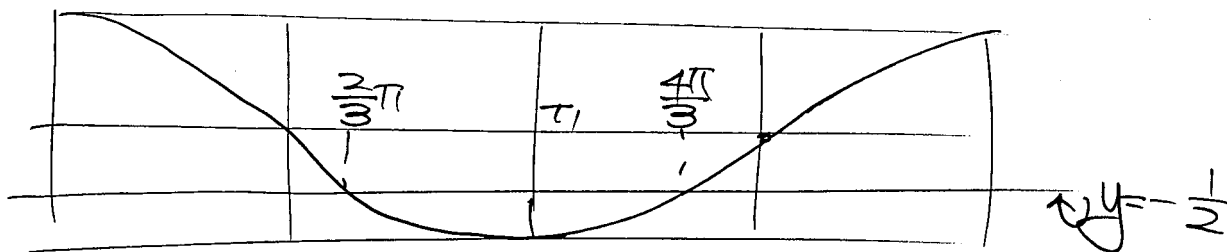
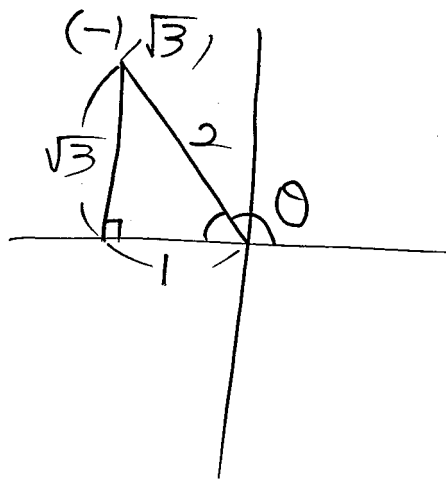
$$\begin{aligned} D/4 &= 2\sin^2\theta + 3\cos\theta \\ &= 2(1 - \cos^2\theta) + 3\cos\theta = 0 \end{aligned}$$

$$2\cos^2\theta - 3\cos\theta - 2 = 0$$

$$(2\cos\theta + 1)(\cos\theta - 2) = 0$$

$$\therefore \cos\theta = -\frac{1}{2}$$

$$\theta = \frac{2}{3}\pi \text{ 또는 } \theta = \frac{4}{3}\pi$$



$$(2) x^2 - 2(\sin\theta)x - \frac{3}{2}\cos\theta = 0$$

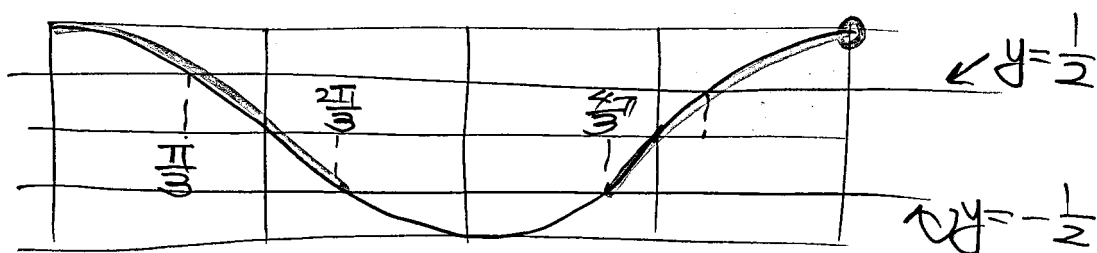
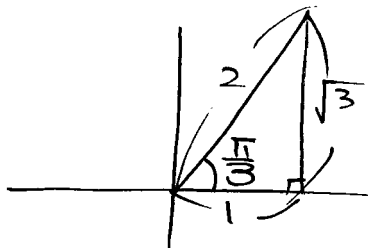
$$D/4 = \sin^2\theta + \frac{3}{2}\cos\theta \geq 0$$

$$2(1 - \cos^2\theta) + 3\cos\theta \geq 0$$

$$2\cos^2\theta - 3\cos\theta - 2 \leq 0$$

$$(2\cos\theta + 1)(\cos\theta - 2) \leq 0$$

$$\cos\theta \geq -\frac{1}{2}$$



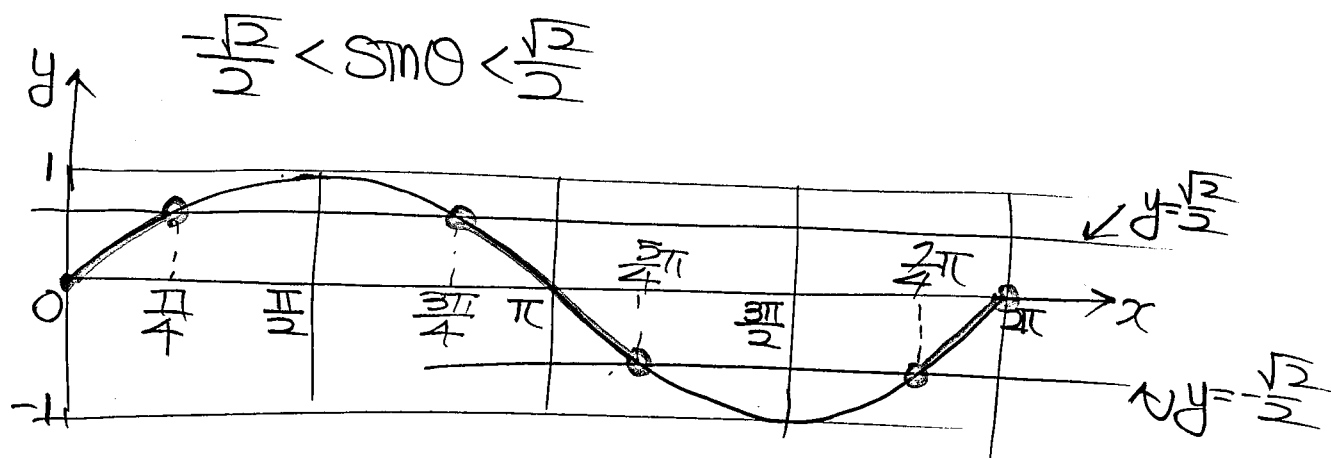
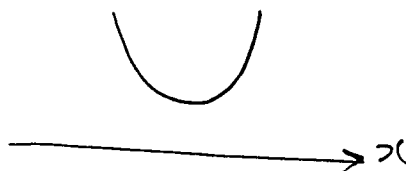
$$0 \leq \theta \leq \frac{2}{3}\pi \text{ 또는 } \frac{4}{3}\pi \leq \theta < 2\pi$$

7-10)

$$x^2 - 2(\sqrt{2}\sin\theta) \cdot x + 1 > 0$$

$$x^2 - 2(\sqrt{2}\sin\theta) \cdot x + 1 = 0$$

$$D/4 = 2\sin^2\theta - 1 = (\sqrt{2}\sin\theta - 1)(\sqrt{2}\sin\theta + 1) < 0$$



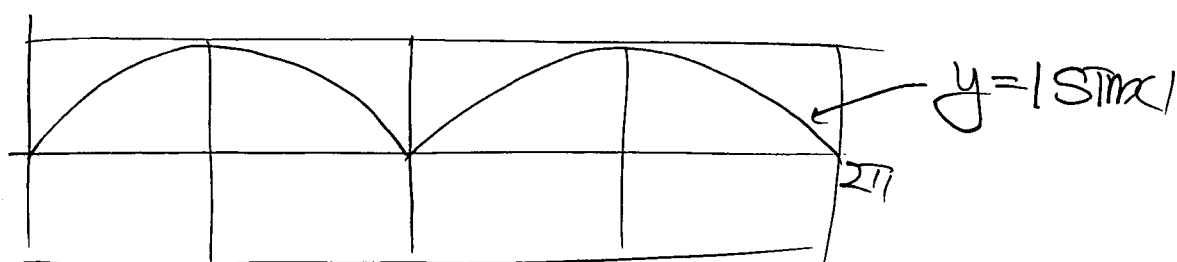
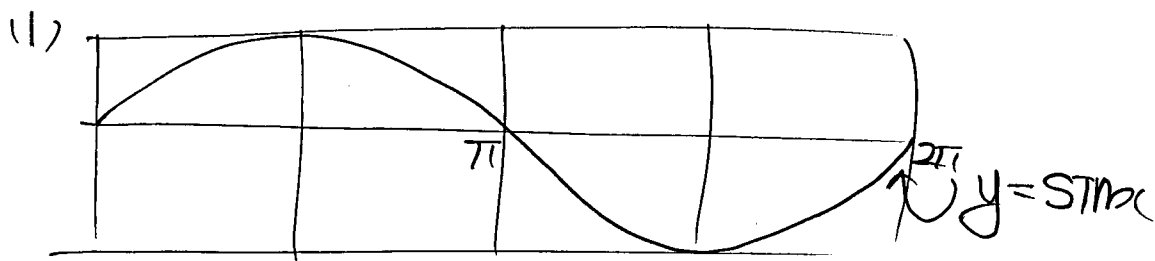
$$0 \leq \theta < \frac{\pi}{4} \quad \text{or} \quad \frac{3\pi}{4} < \theta < \frac{5\pi}{4}$$

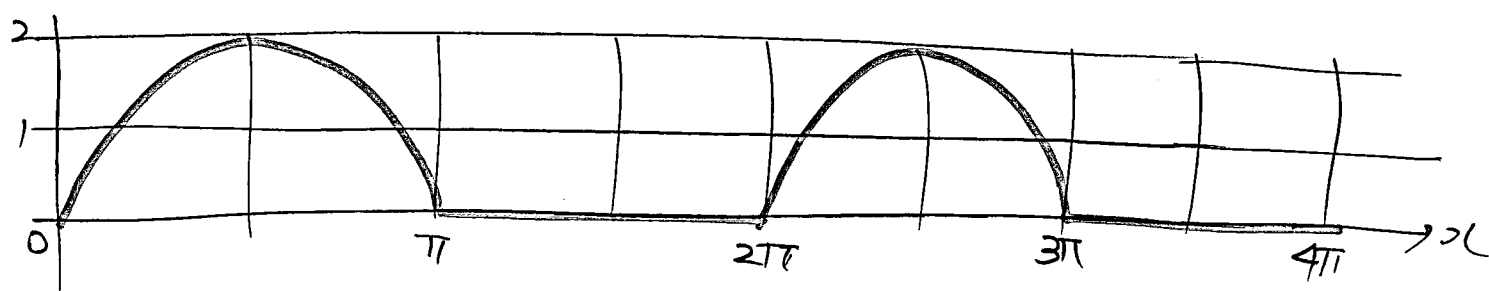
$$\text{or} \quad \frac{7\pi}{4} < \theta < 2\pi$$

7-11) ④

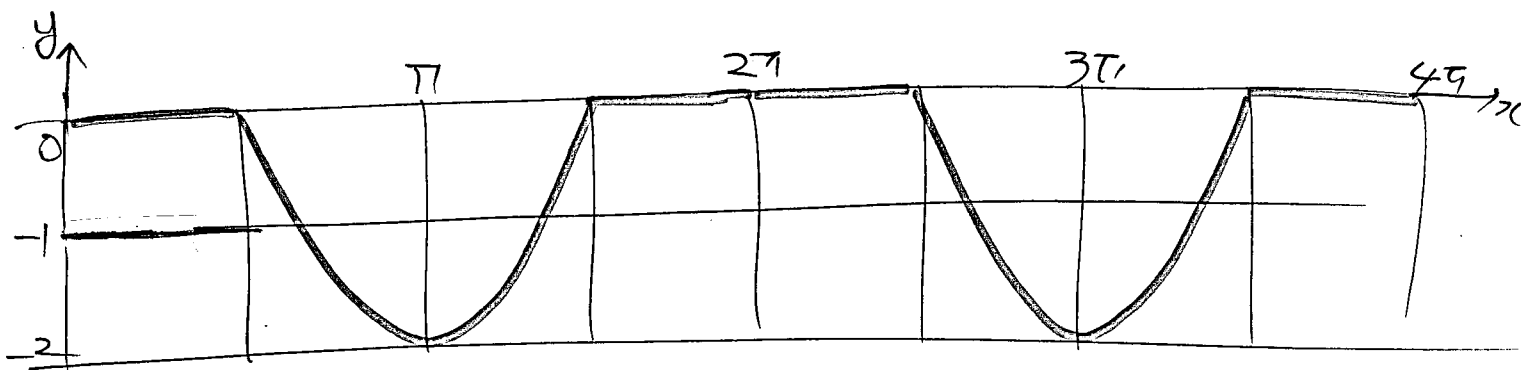
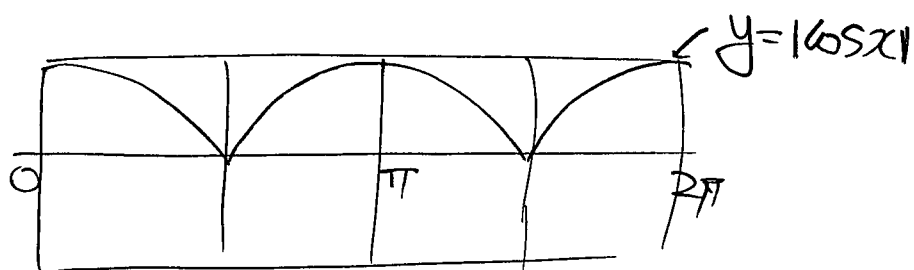
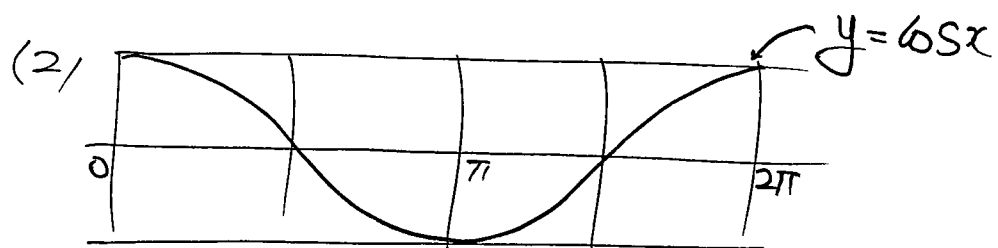
$$a=1, \quad \frac{2\pi}{b} = \pi \quad b=2 \quad ab=2$$

7-12)





$$M=2, m=0, \text{ 주기: } 2\pi$$



$$M=0, m=-2, \text{ 주기: } 2\pi$$

7-13] $\frac{2\pi}{3}$

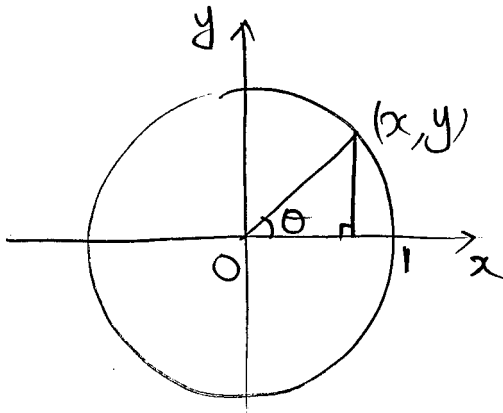
$$\begin{cases} \frac{a+4b}{2} = \pi \\ \frac{4b+5b}{2} = 2\pi \end{cases}$$

$$\boxed{a+b = \frac{2\pi}{3}}$$

$$b = \frac{4\pi}{9} ; a+4b = 2\pi$$

$$a = 2\pi - \frac{16\pi}{9} = \frac{2\pi}{9}$$

7-14] 5



$$x = \cos \theta, y = \sin \theta$$

$$f(\theta) = 4\cos^2 \theta + 4\sin \theta$$

$$\begin{aligned} g(t) &= 4(1-t^2) + 4t \\ &= -4(t^2 - t + \frac{1}{4}) + 5 \\ &= -(t - \frac{1}{2})^2 + 5 \end{aligned}$$

$$\begin{aligned} \sin \theta &= t \\ (-1 \leq t \leq 1) \end{aligned}$$

최댓값: 5

7-15] 1

$$\cos(\frac{\pi}{2} + \theta) = -\sin \theta, \sin(\pi + \theta) = -\sin \theta$$

$$f(\theta) = \sin^2 \theta - 3(1 - \sin^2 \theta) - 4\sin \theta$$

$$\begin{aligned} g(t) &= 4t^2 - 4t - 3 \\ &= 4(t^2 - t + \frac{1}{4}) - 4 \\ &= 4(t - \frac{1}{2})^2 - 4 \end{aligned}$$

$$\begin{aligned} \sin \theta &= t \\ (-1 \leq t \leq 1) \end{aligned}$$

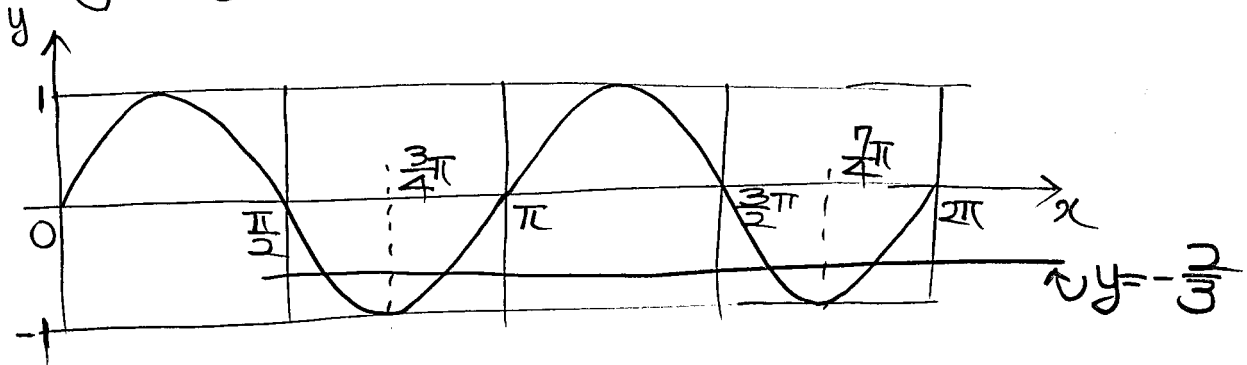
$$M = g(-1) = 4 + 4 - 3 = 5$$

$$m = g(\frac{1}{2}) = -4$$

$$\boxed{M+m=1}$$

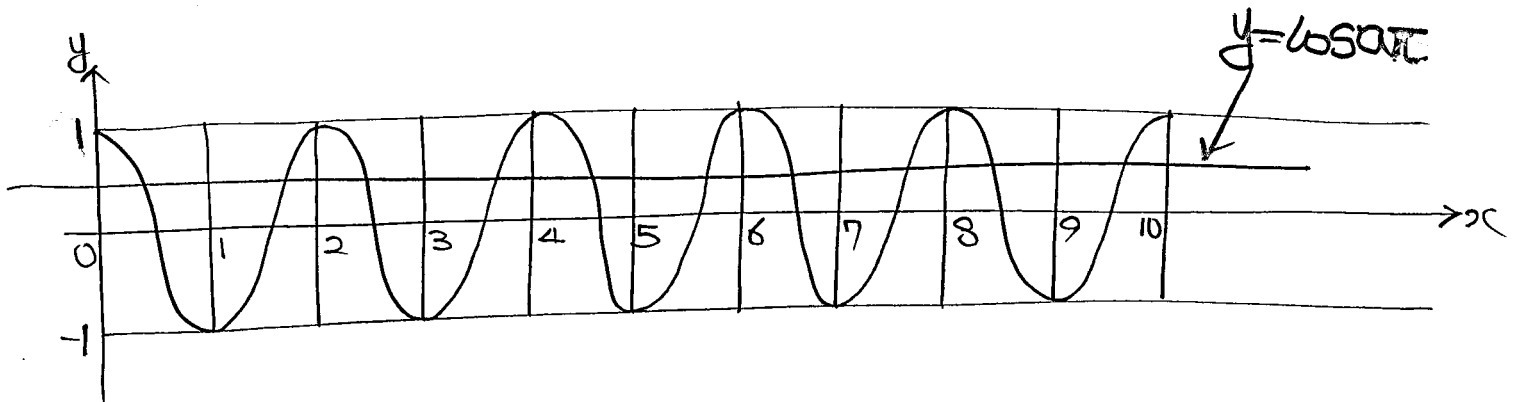
7-16]

(1) $\begin{cases} y = \sin 2x & \text{주기: } \pi \\ y = -\frac{2}{3} \end{cases}$



$$\frac{3\pi}{2} + \frac{7\pi}{2} = 5\pi$$

(2) $\begin{cases} y = \cos \pi x & \text{주기: } 2 \\ y = \cos \alpha \pi \end{cases}$



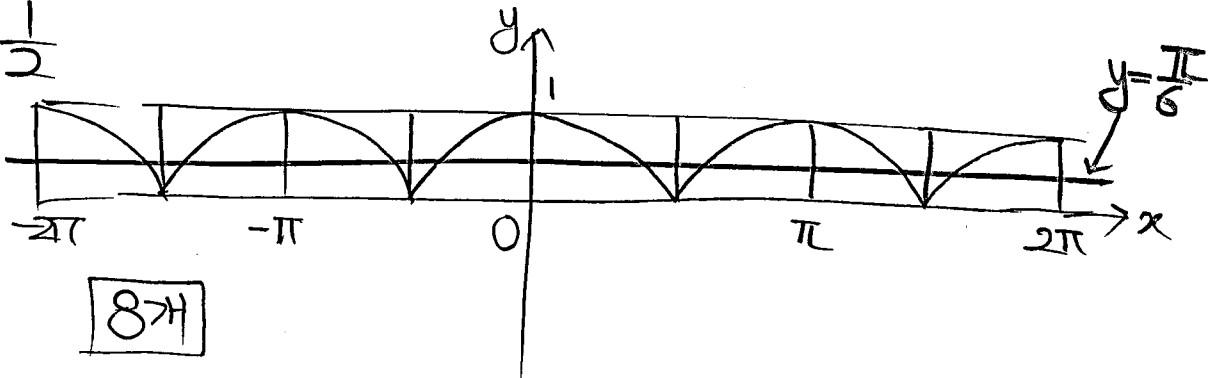
$$2 + 6 + 10 + 14 + 18 = 50$$

7-17] 8

$$|\cos x| = t \quad (0 \leq t \leq 1)$$

$$\sin t = \frac{1}{2}$$

$$t = \frac{\pi}{6}$$



874

7-18]

$$(1) \quad 0 \leq x < 2\pi$$

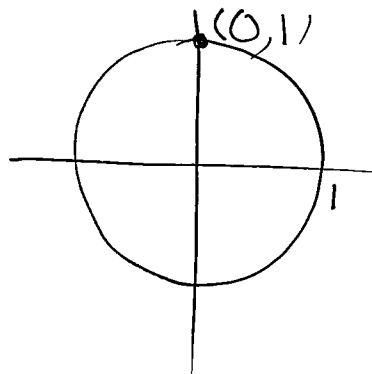
$$-1 \leq \cos x \leq 1$$

$$-\pi \leq \pi \cos x \leq \pi$$

$$\pi \cos x = \theta \quad ; \quad -\pi \leq \theta \leq \pi$$

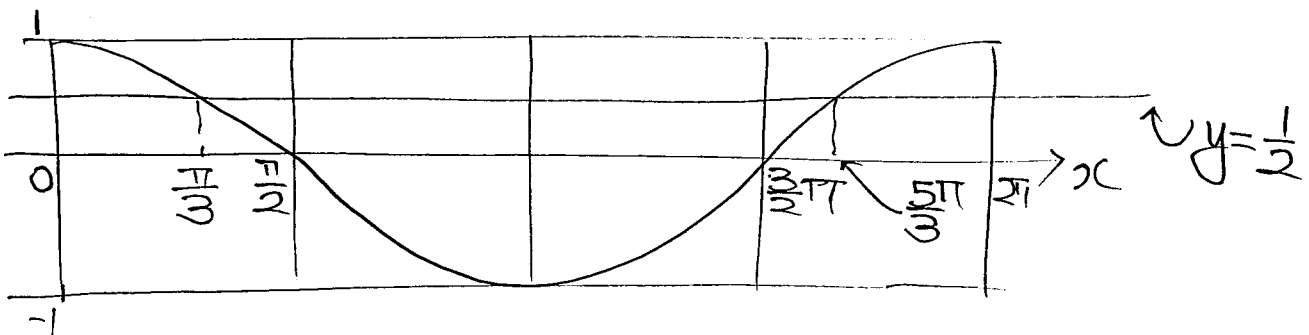
$$\sin \theta = 1$$

$$\theta = \frac{\pi}{2}$$



$$\pi \cos x = \frac{\pi}{2}$$

$$\cos x = \frac{1}{2} \quad x = \frac{\pi}{3}, \frac{5\pi}{3}$$



$$\frac{\pi}{3} + \frac{5\pi}{3} = 2\pi$$

$$(2) 0 \leq x < 2\pi$$

$$-1 \leq \sin x \leq 1$$

$$-2\pi \leq 2\pi \sin x \leq 2\pi$$

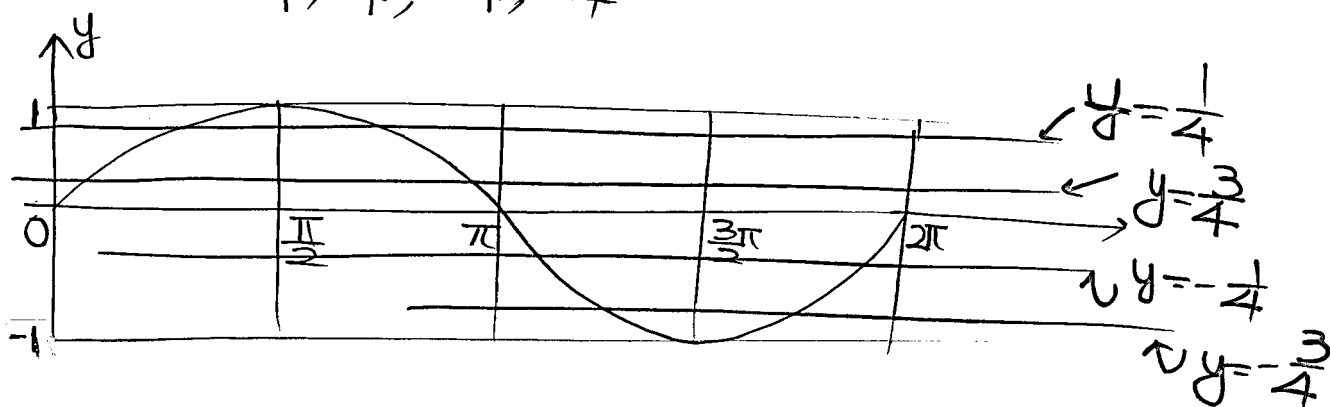
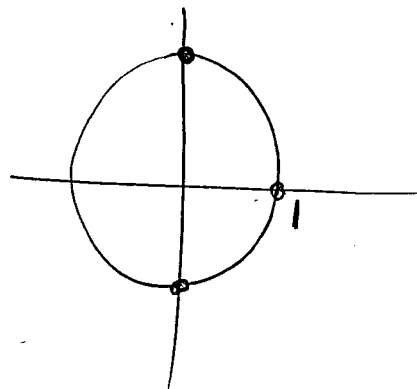
$$2\pi \sin x = \theta \quad (-2\pi \leq \theta \leq 2\pi)$$

$$\cos \theta = 0$$

$$\theta = \frac{\pi}{2}, \frac{3\pi}{2}, -\frac{\pi}{2}, -\frac{3\pi}{2}$$

$$2\pi \sin x = \frac{\pi}{2}, \frac{3\pi}{2}, -\frac{\pi}{2}, -\frac{3\pi}{2}$$

$$\sin x = \frac{1}{4}, \frac{3}{4}, -\frac{1}{4}, -\frac{3}{4}$$



$$\pi + \pi + 3\pi + 3\pi = 8\pi$$

7-191

$$(1) x^2 - 2(\cos \theta) \cdot x + \sin \theta + 1 \geq 0$$

$$x^2 - 2(\cos \theta) \cdot x + \sin \theta + 1 = 0$$

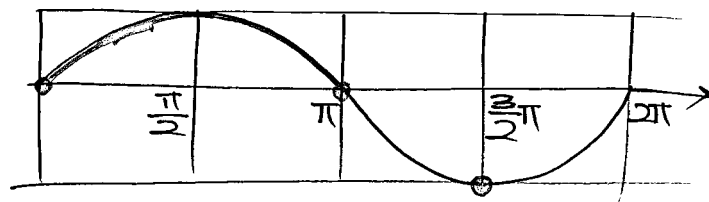
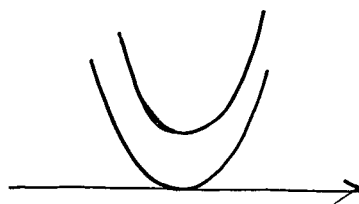
$$D/4 = \cos^2 \theta - \sin \theta - 1$$

$$= -\sin^2 \theta - \sin \theta \leq 0$$

$$\sin^2 \theta + \sin \theta \geq 0$$

$$\sin \theta \cdot (\sin \theta + 1) \geq 0$$

$$\sin \theta \leq -1 \text{ 또는 } \sin \theta \geq 0$$



$$0 \leq \theta \leq \pi \text{ 또는 } \theta = \frac{3\pi}{2}$$

$$(2) \sin x = t \quad (-1 \leq t \leq 1)$$

$$(1-t^2) + (a+2)t - 2a - 1 > 0$$

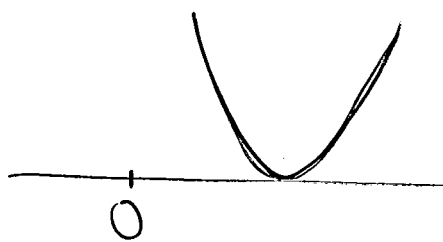
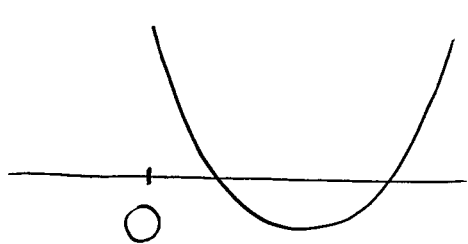
$$t^2 - (a+2)t + 2a < 0$$

$$\underbrace{(t-a)}_{>0} \underbrace{(t-2)}_{<0} < 0$$

$$t > a \quad \therefore a < -1$$

7-20

$$x^2 + 2(\cos \theta) \cdot x + \sin^2 \theta - \sin \theta + 1 = 0 \quad \exists \alpha, \beta \quad (\alpha > 0, \beta > 0)$$



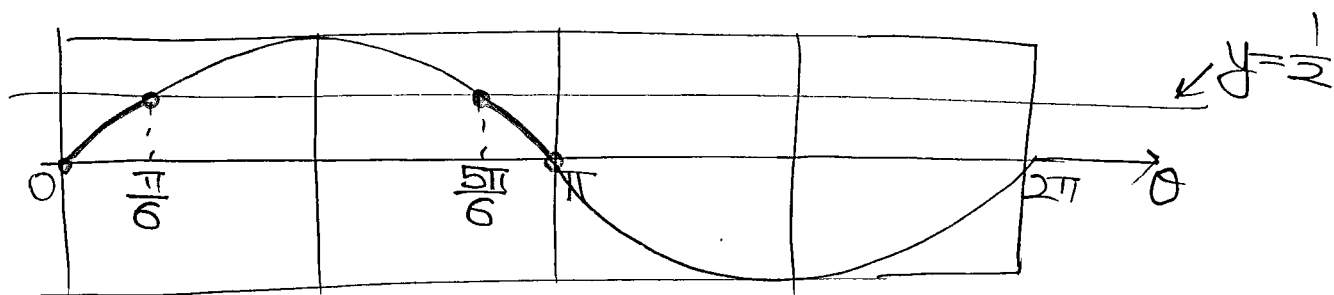
$$\textcircled{1} D/4 = \cos^2 \theta - (\sin^2 \theta - \sin \theta + 1)$$

$$= 1 - \sin^2 \theta - \sin^2 \theta + \sin \theta - 1$$

$$= -2\sin^2 \theta + \sin \theta \geq 0$$

$$2\sin^2 \theta - \sin \theta = \sin \theta \cdot (2\sin \theta - 1) \leq 0$$

$$\therefore 0 \leq \sin \theta \leq \frac{1}{2}$$

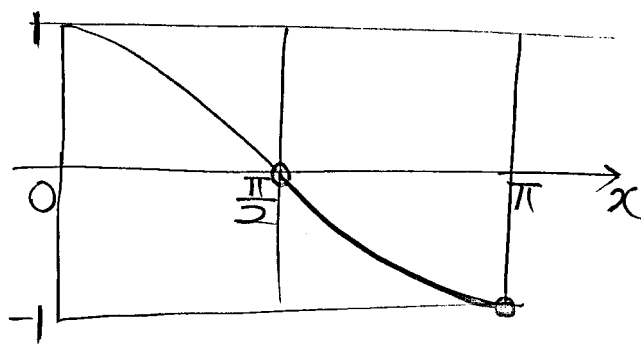


$$0 \leq \theta \leq \frac{\pi}{6} \quad \text{or} \quad \frac{5\pi}{6} \leq \theta \leq \pi$$

$$\textcircled{L} \quad \alpha + \beta = -2\cos\theta > 0$$

$$\cos\theta < 0$$

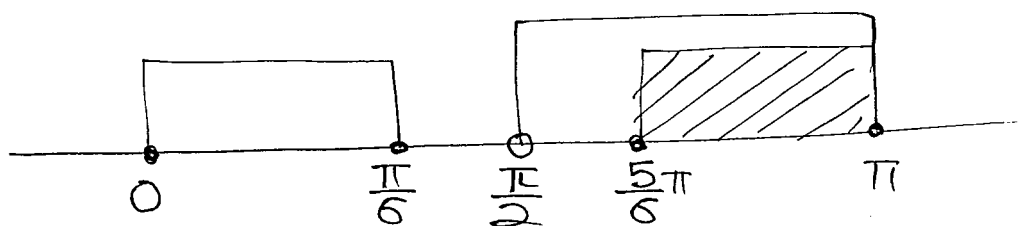
$$\therefore \frac{\pi}{2} < \theta \leq \pi$$



$$\textcircled{E} \quad \alpha\beta = \sin^2\theta - \sin\theta + 1$$

$$= \left(\sin\theta - \frac{1}{2}\right)^2 + \frac{3}{4} > 0$$

$\textcircled{L}, \textcircled{E}$



$$\boxed{\frac{5\pi}{6} \leq \theta \leq \pi}$$