

ΕΥΟΤΗΤΑ 13

35 $f(x) = 1 + 2.5\omega \frac{x}{3}$

(a) $T = \frac{2\pi}{\omega} = \frac{2\pi}{\frac{1}{3}} = 6\pi$

$M = |p| + c = |2| + 1 = 2 + 1 = 3$

$m = -|p| + c = -|2| + 1 = -2 + 1 = -1$

$f(x) = p\sin\omega x + c$

$T = \frac{2\pi}{\omega}$

Max: $|p| + c$

Min: $-|p| + c$

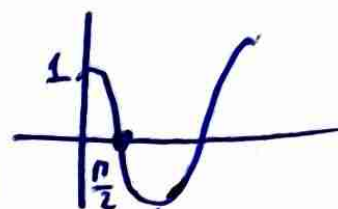
$\omega = \frac{1}{3} \quad p = 2$

$c = 1$

(3)
(4)

$\frac{x}{3}$	0	$\frac{3\pi}{2}$	3π	$\frac{9\pi}{2}$	6π
$\sin\omega\frac{x}{3}$	1	0	-1	0	1
$2.5\omega\frac{x}{3}$	2	0	-2	0	2
$f(x)$	3	1	-1	1	3

$T = 6\pi$



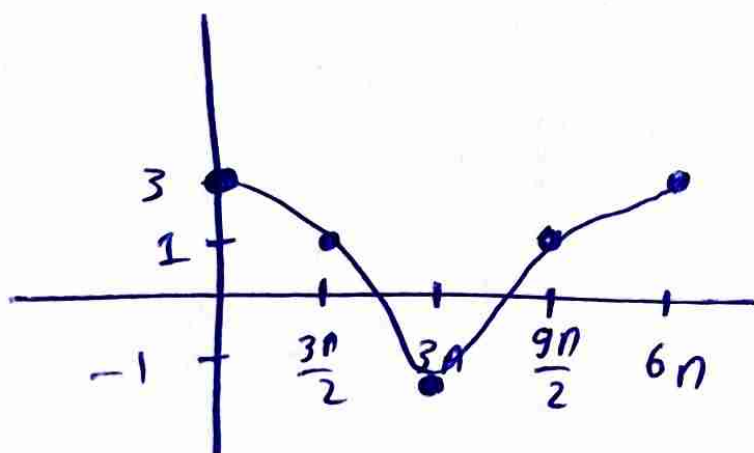
Χωρίζω το 6π στο 4

$\frac{6\pi}{4} = \frac{3\pi}{2}$

$\frac{6\pi}{2} = 3\pi$

$\frac{9\pi}{2}$

$\frac{12\pi}{2} = 6\pi$



$$⑥ \quad f\left(\frac{3n}{2} - x\right) + n\mu \frac{x}{3} = 4$$

$$\boxed{f(x) = 1 + 2\sigma\omega \frac{x}{3}}$$

$$f\left(\frac{3n}{2} - x\right) = 1 + 2\sigma\omega \left(\frac{\frac{3n}{2} - x}{3}\right) = 1 + 2\sigma\omega \left(\frac{\frac{3n}{2}}{3} - \frac{x}{3}\right)$$

$$= 1 + 2\sigma\omega \left(\frac{3n}{6} - \frac{x}{3}\right) = 1 + 2\sigma\omega \left(\frac{n}{2} - \frac{x}{3}\right)$$

$$= 1 + 2n\mu \frac{x}{3}$$

$$1 + 2n\mu \frac{x}{3} + n\mu \frac{x}{3} = 4$$

$$3n\mu \frac{x}{3} = 3$$

$$n\mu \frac{x}{3} = 1$$

$$n\mu \frac{x}{3} = n\mu \frac{n}{2}$$

$$\frac{x}{3} = 2kn + \frac{n}{2}$$

$$\boxed{x = 6kn + \frac{3n}{2}}$$

$$\therefore \frac{x}{3} = 2kn + n - \frac{n}{2}$$

$$\boxed{\frac{x}{3} = 2kn + \frac{n}{2}}$$

B6. $f(x) = \alpha \eta \mu(3\eta - \omega x) + \alpha \sigma \omega / \frac{\eta}{2} - \omega x$

① NDO $f(x) = 2\alpha \eta \mu \omega x$

• $\eta \mu(3\eta - \omega x) = \eta \mu(\cancel{2\eta} + \eta - \omega x) = \eta \mu(\eta - \omega x) = \eta \mu \omega x$

• $\sigma \omega / \frac{\eta}{2} - \omega x = \eta \mu \omega x$

Apr $f(x) = \alpha \cdot \eta \mu \omega x + \alpha \eta \mu \omega x$

$f(x) = 2\alpha \eta \mu \omega x$

② $\subseteq \sigma \tau \omega$ $T = \eta$ και $A(\frac{\eta}{12}, -\frac{3}{2}) \in (f$

i) vdo $f(x) = -3\eta \mu 2x$

$T = \frac{2\eta}{\omega} \Leftrightarrow \cancel{\eta} = \frac{2\cancel{\eta}}{\omega} \Rightarrow \underline{\underline{\omega = 2}}$

$f(\frac{\eta}{12}) = 2\alpha \eta \mu 2 \frac{\eta}{12} = -\frac{3}{2}$

$2\alpha \eta \mu \frac{\eta}{6} = -\frac{3}{2}$

$\cancel{\frac{2\alpha}{2}} = -\frac{3}{2}$

$\alpha = -\frac{3}{2}$

$f(x) = 2(-\frac{3}{2}) \mu \mu 2x$

$f(x) = -3\eta \mu 2x$

$$11) f(x) = -3np2x$$

$$\text{Max} = |p| + c = |-3| = 3$$

$$\text{Min} = -|p| + c = -3$$

$$f(x) = 3$$

$$-3np2x = 3$$

$$np2x = -1$$

$$np2x = -np \frac{n}{2}$$

$$np2x = np(-\frac{n}{2})$$

$$2x = 2kn - \frac{n}{2}$$

$$\therefore 2x = 2kn + n + \frac{n}{2}$$

$$x = kn + \frac{n}{2} + \frac{n}{4}$$

$$\boxed{x = kn - \frac{n}{4}}$$

$$\boxed{x = kn + \frac{3n}{4}}$$

$$f(x) = -3$$

$$-3np2x = -3$$

$$np2x = 1$$

$$np2x = np \frac{n}{2}$$

$$2x = 2kn + \frac{n}{2} \quad \therefore 2x = 2kn + n - \frac{n}{2}$$

$$\boxed{x = kn + \frac{n}{4}}$$

$$\text{iii) } f(x) = \frac{3}{\sqrt{2}}$$

$$-3 \sin 2x = \frac{3}{\sqrt{2}}$$

$$\sin 2x = -\frac{3}{3\sqrt{2}}$$

$$\sin 2x = -\frac{1}{\sqrt{2}} = -\frac{\sqrt{2}}{2}$$

$$\sin 2x = -\frac{\sqrt{2}}{2}$$

$$\sin 2x = -\sin \frac{\pi}{4}$$

$$\sin 2x = \sin -\frac{\pi}{4}$$

$$2x = 2k\pi - \frac{\pi}{4}$$

$$x = k\pi - \frac{\pi}{8}$$

$$\text{iv) } 2x = 2k\pi + \pi - \left(-\frac{\pi}{4}\right)$$

$$2x = 2k\pi + \pi + \frac{\pi}{4}$$

$$x = k\pi + \frac{\pi}{2} + \frac{\pi}{8}$$

$$x = k\pi + \frac{5\pi}{8}$$

14).

$2x$	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	π
$\sin 2x$	0	1	0	-1	0
$f(x)$	0	-3	0	3	0

$$f(x) = -3 \sin 2x$$

