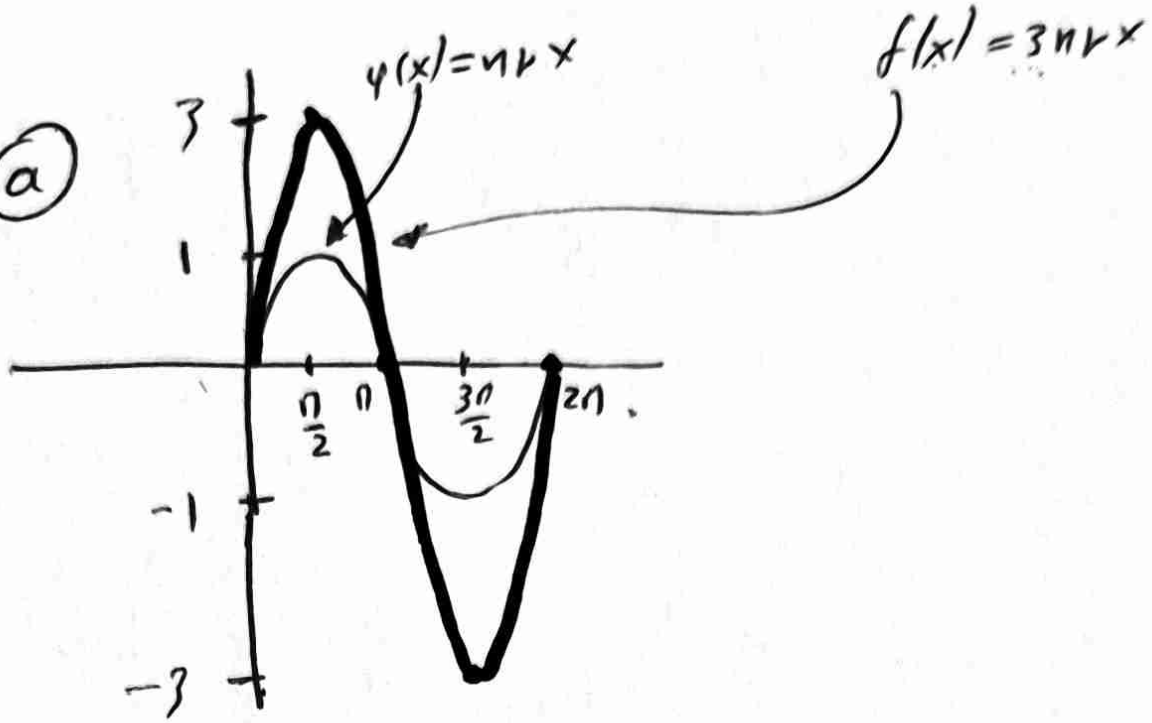
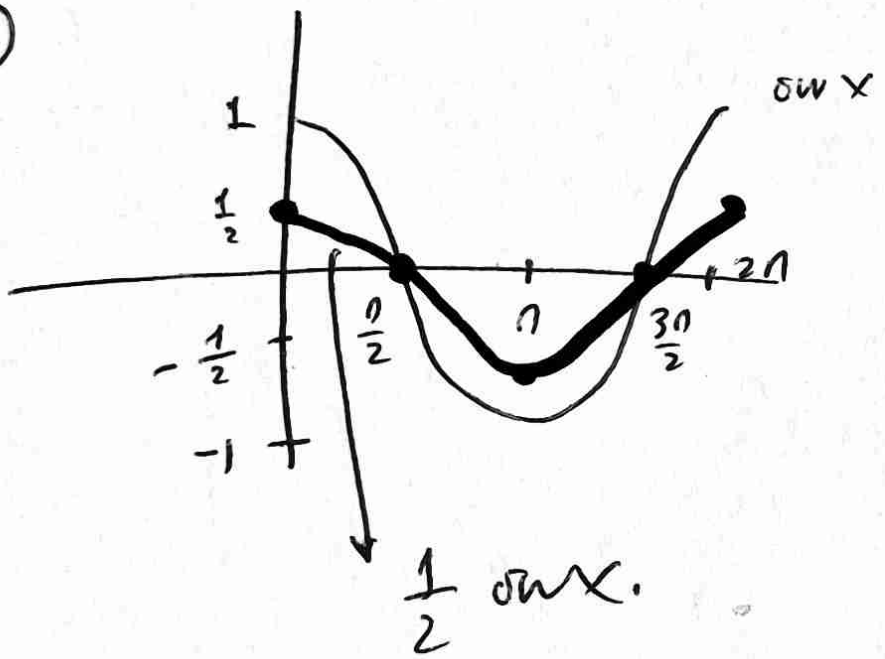
Ενότητα 12

11. ⓐ



ⓑ



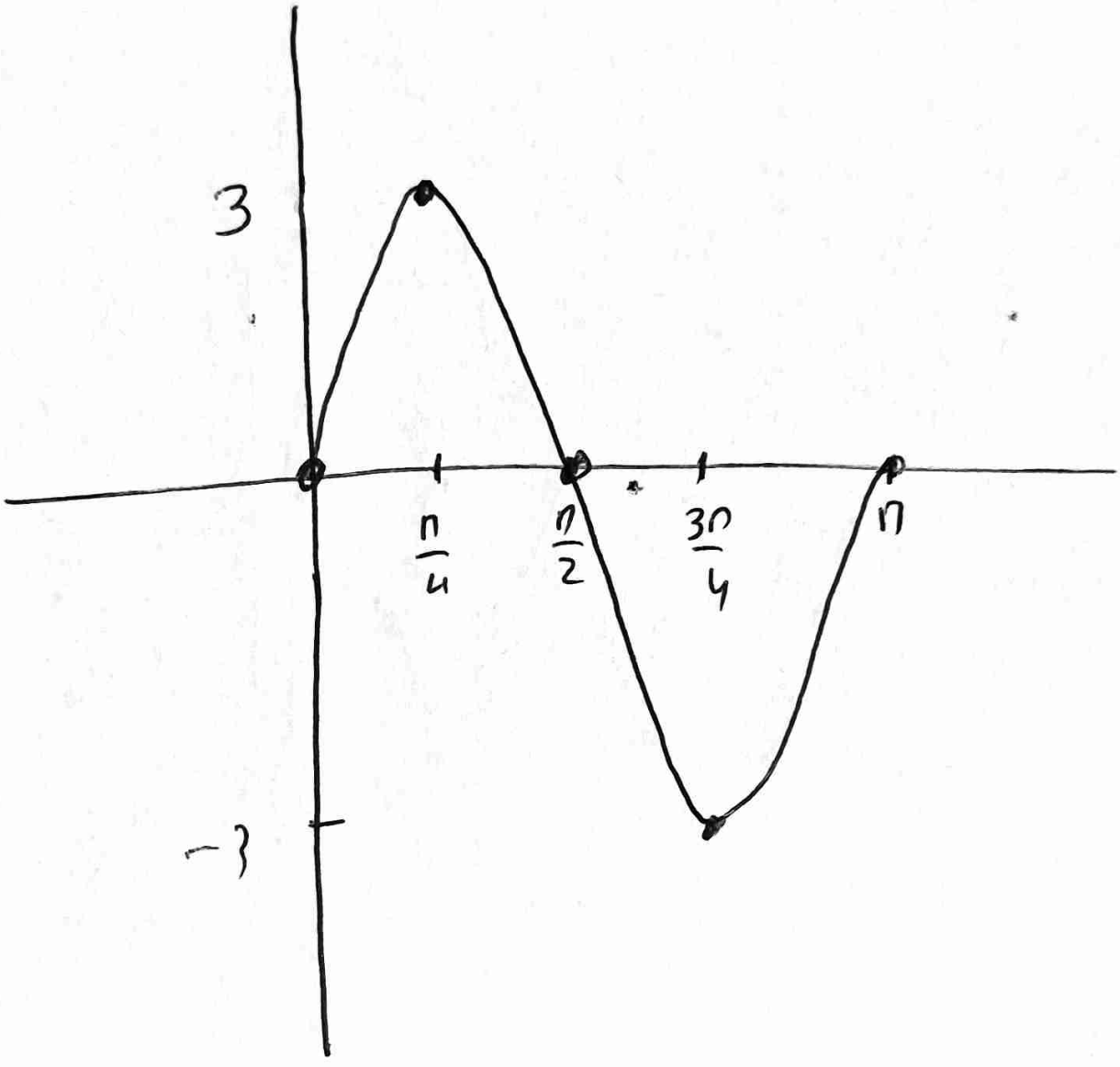
$\frac{1}{2}$ συνx.

13. $f(x) = 3\sin 2x$

Max = 3

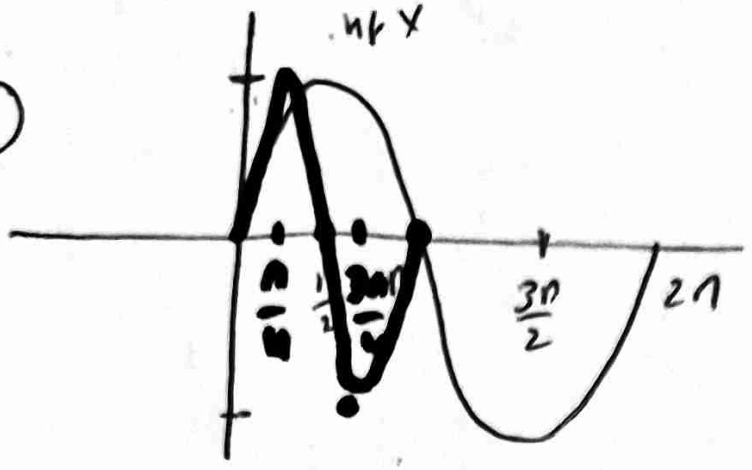
min = -3

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



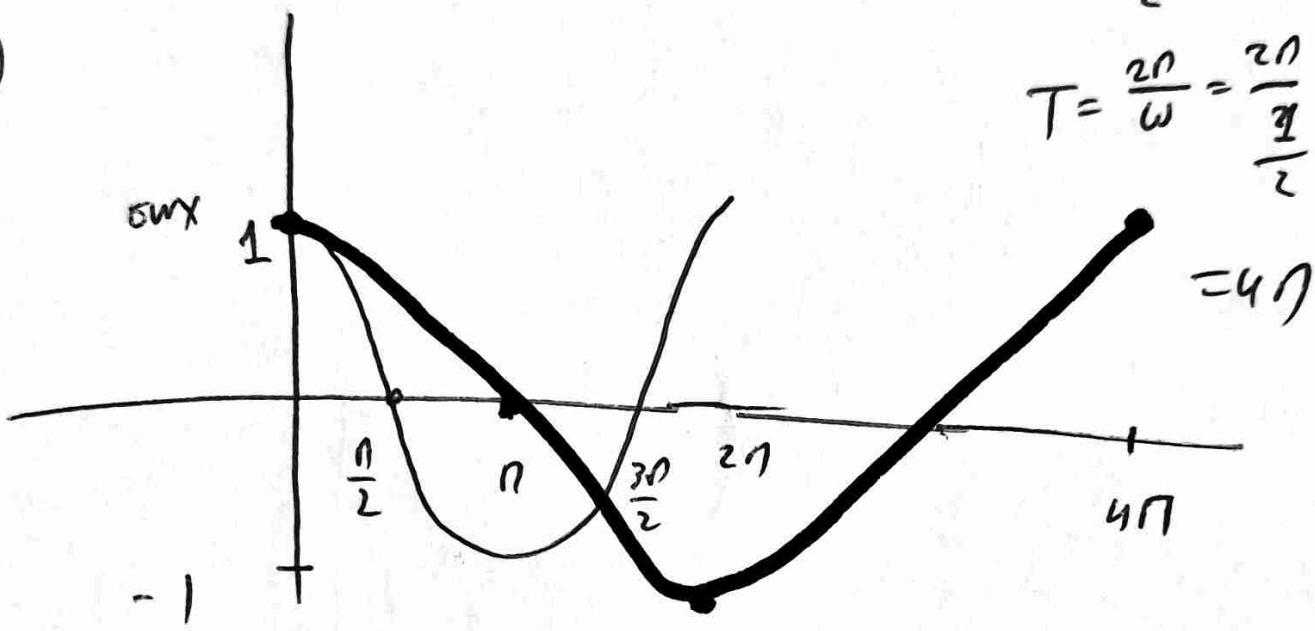
12.

(a)



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

(b)



$T = \frac{2\pi}{\omega} = \frac{2\pi}{\frac{1}{2}} = 4\pi$

18. $f(x) = \gamma + 2\alpha \sin Bx$, $B > 0$

$f(0) = 0$

$T = 3$

$\frac{2\pi}{\omega} = 3 \Rightarrow \frac{2\pi}{B} = 3 \Rightarrow B = \frac{2\pi}{3}$

$M = 3 - \alpha$

$|\rho| + c = 3 - \alpha$

$|2\alpha| + \gamma = 3 - \alpha$.

$2|\alpha| + \gamma = 3 - \alpha \rightarrow 2|\alpha| = 3 - \alpha$.

$3 - \alpha > 0$

$3 > \alpha$

$f(0) = 0$

$\gamma = 0$

$2\alpha = 3 - \alpha$ ve $2\alpha = -3 + \alpha$

$3\alpha = 3$

$\alpha = 1$

$\alpha = -3$

17. ⓐ $f(x) = 1 + 2\sin\frac{x}{2}$

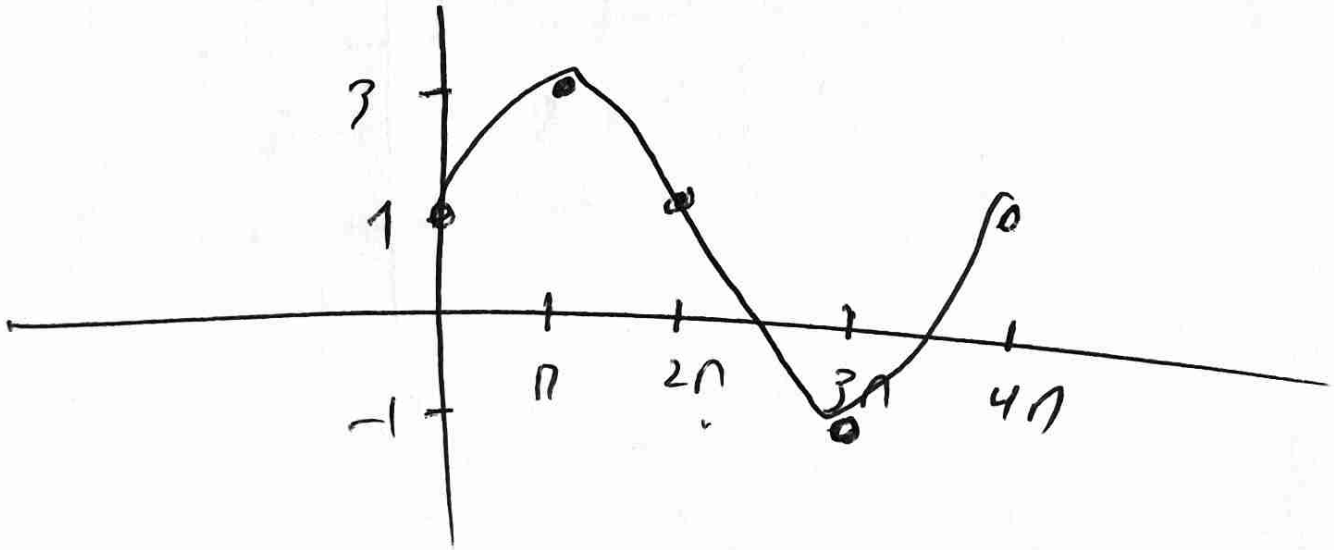
$\omega = \frac{1}{2}$ $\quad p = 2$ $\quad c = 1$

$T = \frac{2\pi}{\omega} = \frac{2\pi}{\frac{1}{2}} = 4\pi$

$M = |2| + 1 = 3$

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

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



⑧ $f(x) = -2 + 3\sin 3x$

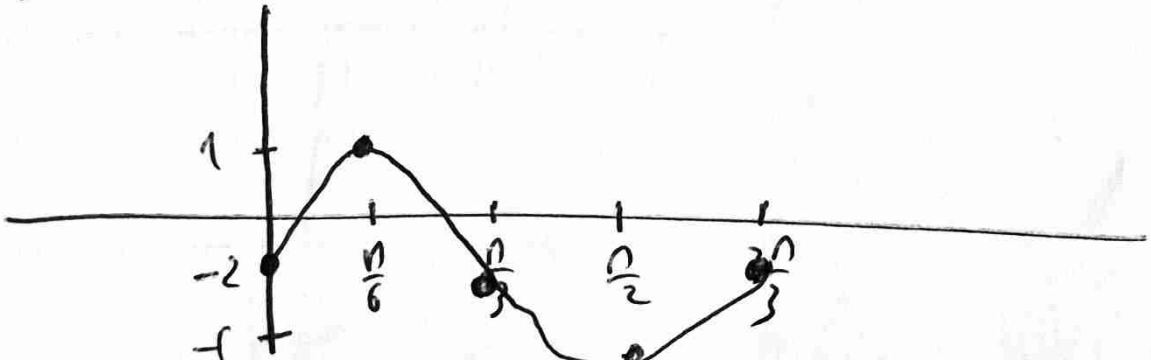
$\omega = 3 \quad p = 3 \quad c = -2$

$T = \frac{2\pi}{\omega} = \frac{2\pi}{3}$

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

$m = -|p| + c = -3 - 2 = -5.$

$3x$	0	$\frac{\pi}{2}$	π	$\frac{3\pi}{2}$	2π
x	0	$\frac{\pi}{6}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$
$\sin 3x$	0	1	0	-1	0
$3\sin 3x$	0	3	0	-3	0
$f(x)$	-2	1	-2	-5	-2



⑧ $f(x) = -1 - 2\cos\frac{x}{3}$

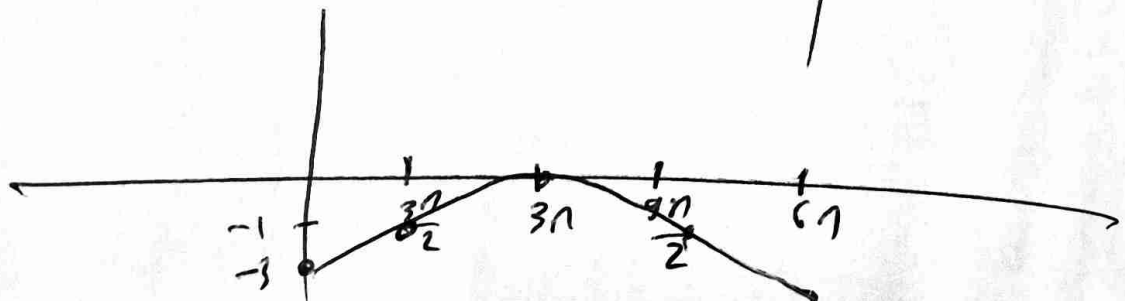
$\omega = \frac{1}{3} \quad p = -2 \quad c = -1$

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

$M = |-2| - 1 = 2 - 1 = 1.$

$m = -|-2| - 1 = -3.$

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



1. Θεμα

(Α) στω $f(x) = \eta\mu(\pi - 3x) + \sigma\upsilon\nu\left(\frac{\pi}{2} - 3x\right)$

(Β) Νδο $f(x) = 2\eta\mu 3x$

- $\eta\mu(\pi - 3x) = \eta\mu 3x$
- $\sigma\upsilon\nu\left(\frac{\pi}{2} - 3x\right) = \eta\mu 3x$

$f(x) = \eta\mu 3x + \eta\mu 3x$

$$\boxed{f(x) = 2\eta\mu 3x}$$

(Β) $T = \frac{2\pi}{3}$