

p. 298 / 8, 14.

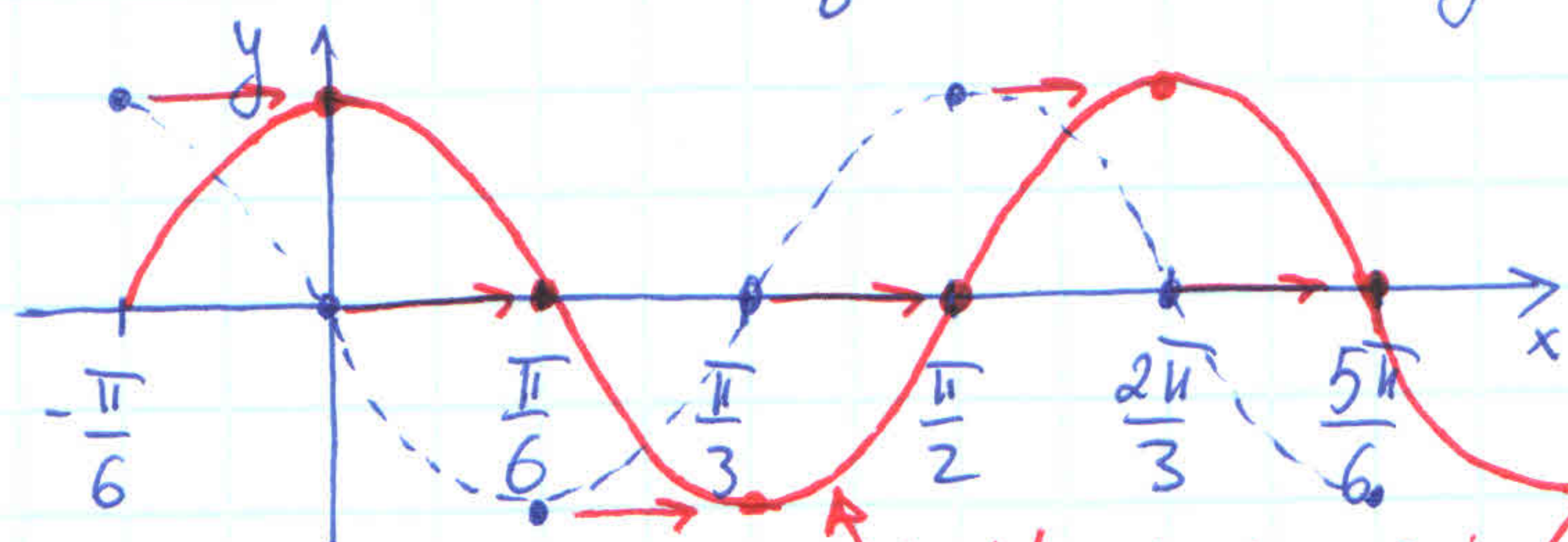
N8 $y = -\sin(3x - \frac{\pi}{2})$

period: $\frac{2\pi}{b} = \frac{2\pi}{3}$ amplitude: $|a| = |-1| = 1$

displacement: $-\frac{c}{b} = -\frac{-\frac{\pi}{2}}{3} = \frac{\pi}{6}$

"-", therefore rotated about x-axis (flipped)

We'll sketch the graph of $y = -\sin(3x)$ and then move it $\frac{\pi}{6}$ to the right.



5 most important points:

$0, \frac{p}{4} = \frac{2\pi}{3} = \frac{\pi}{6}, \frac{p}{2} = \frac{2\pi}{3} = \frac{\pi}{3}, \frac{3p}{4} = \frac{3 \cdot \frac{2\pi}{3}}{4} = \frac{\pi}{2}, p = \frac{2\pi}{3}$

x	0	$\frac{\pi}{6}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$
y	0	-1	0	1	0

← for $y = -\sin(3x)$

N14

p. 298

$$y = \frac{1}{3} \cos\left(\frac{1}{2}x - \frac{\pi}{8}\right)$$

amplitude: $\frac{1}{3}$ period: $\frac{2\pi}{\frac{1}{2}} = 4\pi$

displacement: $-\frac{c}{b} = -\frac{-\frac{\pi}{8}}{\frac{1}{2}} = \frac{\pi}{8} \cdot \frac{2}{1} = \frac{\pi}{4}$

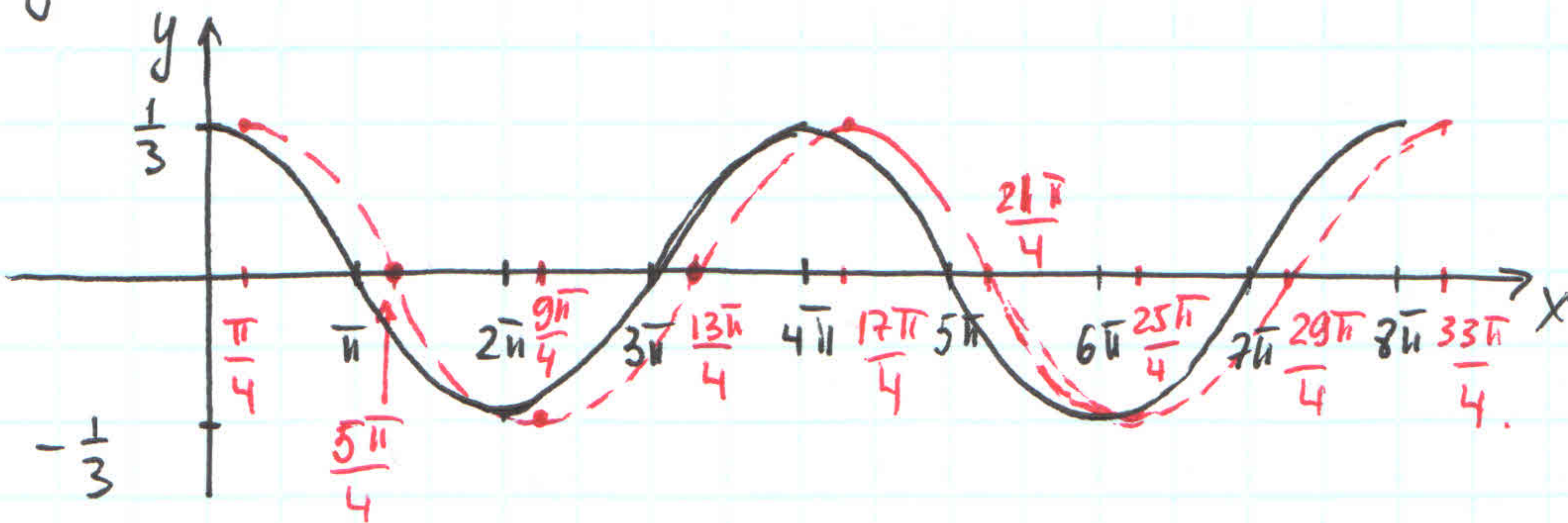
5 most important points: 0 , $\frac{p}{4} = \frac{4\pi}{4} = \pi$, $\frac{p}{2} = \frac{4\pi}{2} = 2\pi$,

$\frac{3p}{4} = \frac{3 \cdot 4\pi}{4} = 3\pi$, $p = 4\pi$

let's sketch the graph of $y = \frac{1}{3} \cos\left(\frac{1}{2}x\right)$ and then shift it $\frac{\pi}{4}$ to the right

x	0	π	2π	3π	4π
y	$\frac{1}{3}$	0	$-\frac{1}{3}$	0	$\frac{1}{3}$

$y = \frac{1}{3} \cos\left(\frac{1}{2}x\right)$



two periods are shown

$$\pi + \frac{\pi}{4} = \frac{5\pi}{4}$$

$$2\pi + \frac{\pi}{4} = \frac{9\pi}{4}$$

$$3\pi + \frac{\pi}{4} = \frac{13\pi}{4}$$

$$4\pi + \frac{\pi}{4} = \frac{17\pi}{4}$$