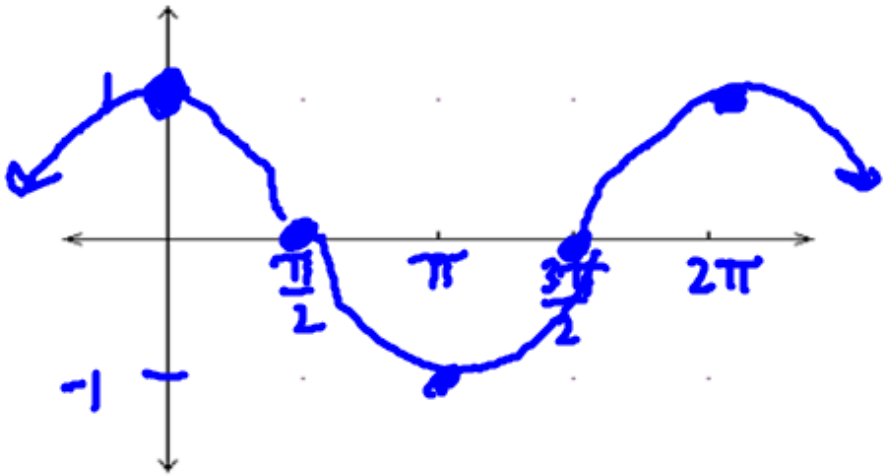
Lesson 12.2: Graphing Cosine

Cosine

$$f(x) = \cos x$$

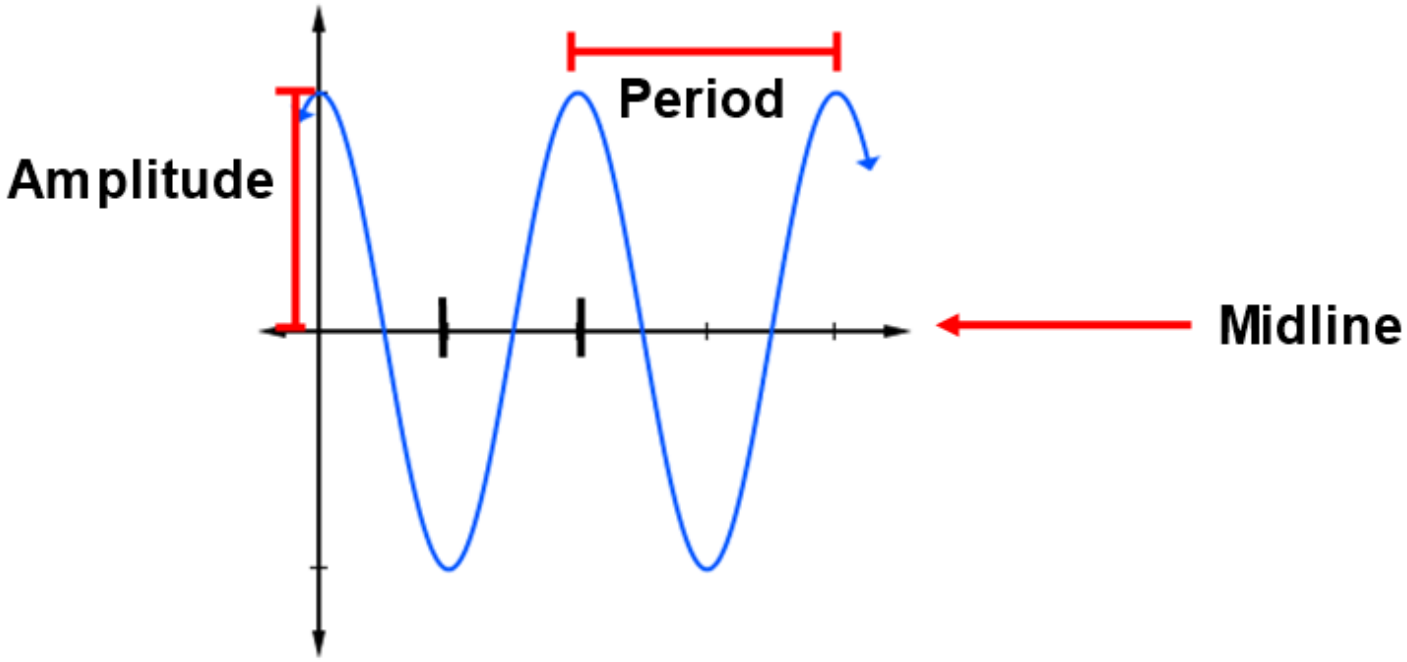


★ Starts at the Max

Midline: y=0

Amplitude: 1

Period: 2π



Midline: Middle of the Wave
Amplitude: Distance from the Midline to the Maximum
Period: the length of one complete cycle

$$\text{Frequency} = \frac{1}{\text{Period}}$$

$$y = a \cdot \cos(bx) + k$$

$|a|$ = amplitude

b = number of cycles between 0 and 2π

$$\text{Period} = \frac{2\pi}{b}$$

k = midline

Determine the midline, amplitude, period and frequency.

(M) (A) (P) (F)

$y = 2\cos(5x) + 1$

M: 1

A: 2

P: $\frac{2\pi}{5}$

F: $\frac{5}{2\pi}$

reciprocal

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

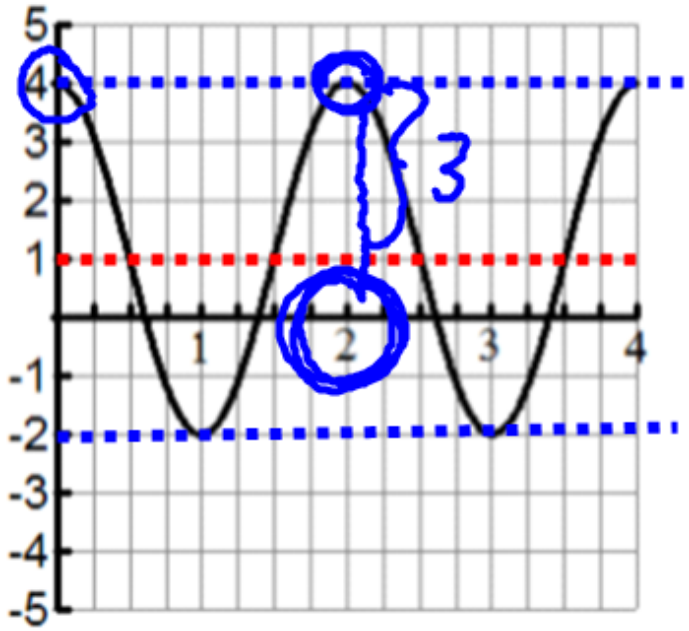
M: 0

A: $|-1| = 1$

P: $\frac{2\pi}{1/3} = 2\pi \cdot 3 = 6\pi$

F: $\frac{1}{6\pi}$

Determine the midline, amplitude, period and frequency.



M: 1

A: 3

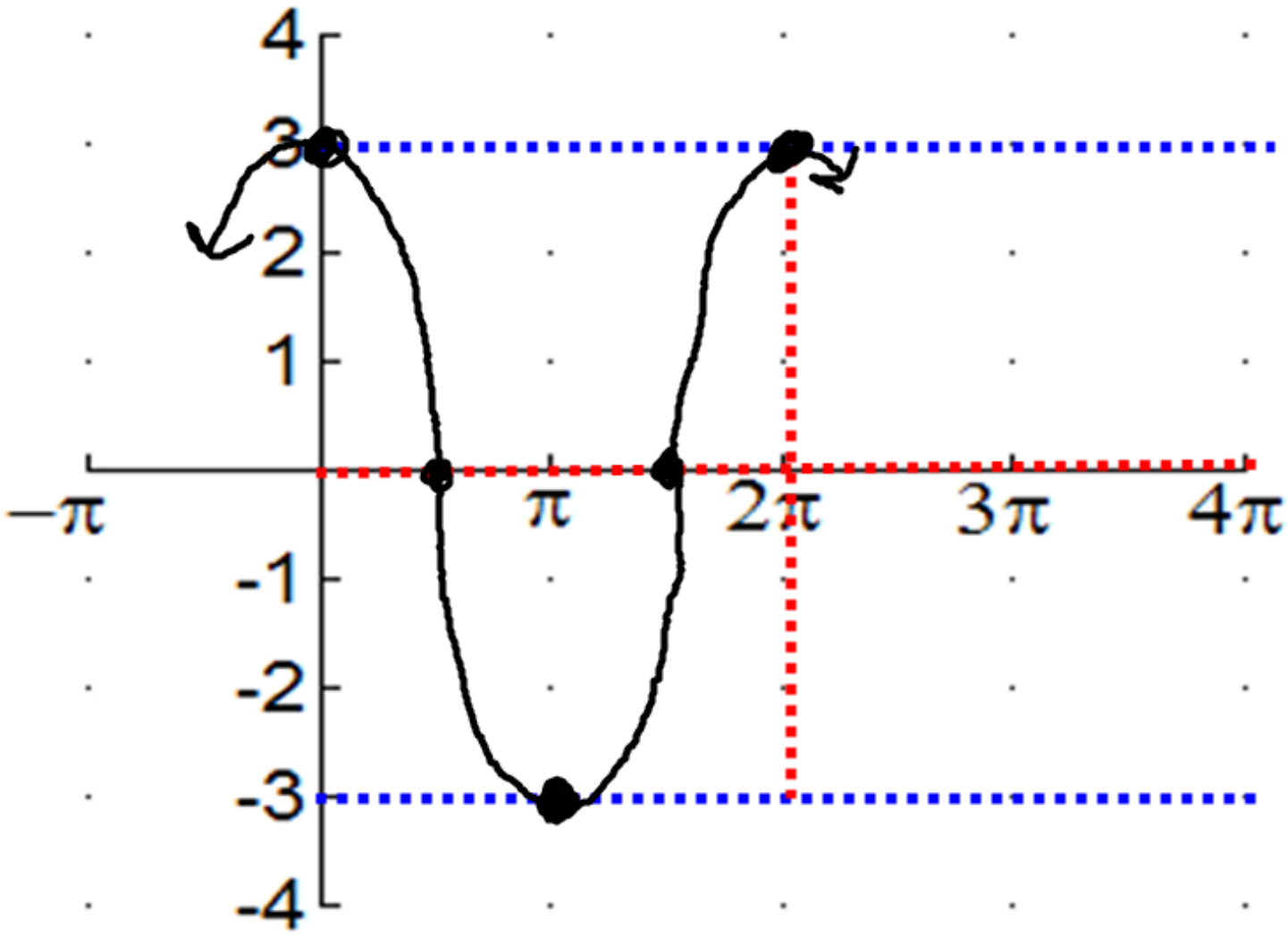
P: 2

F: 1/2

Period
length of
1 cycle

Graph the following:

$y = 3\cos x$



M: 0

A: 3

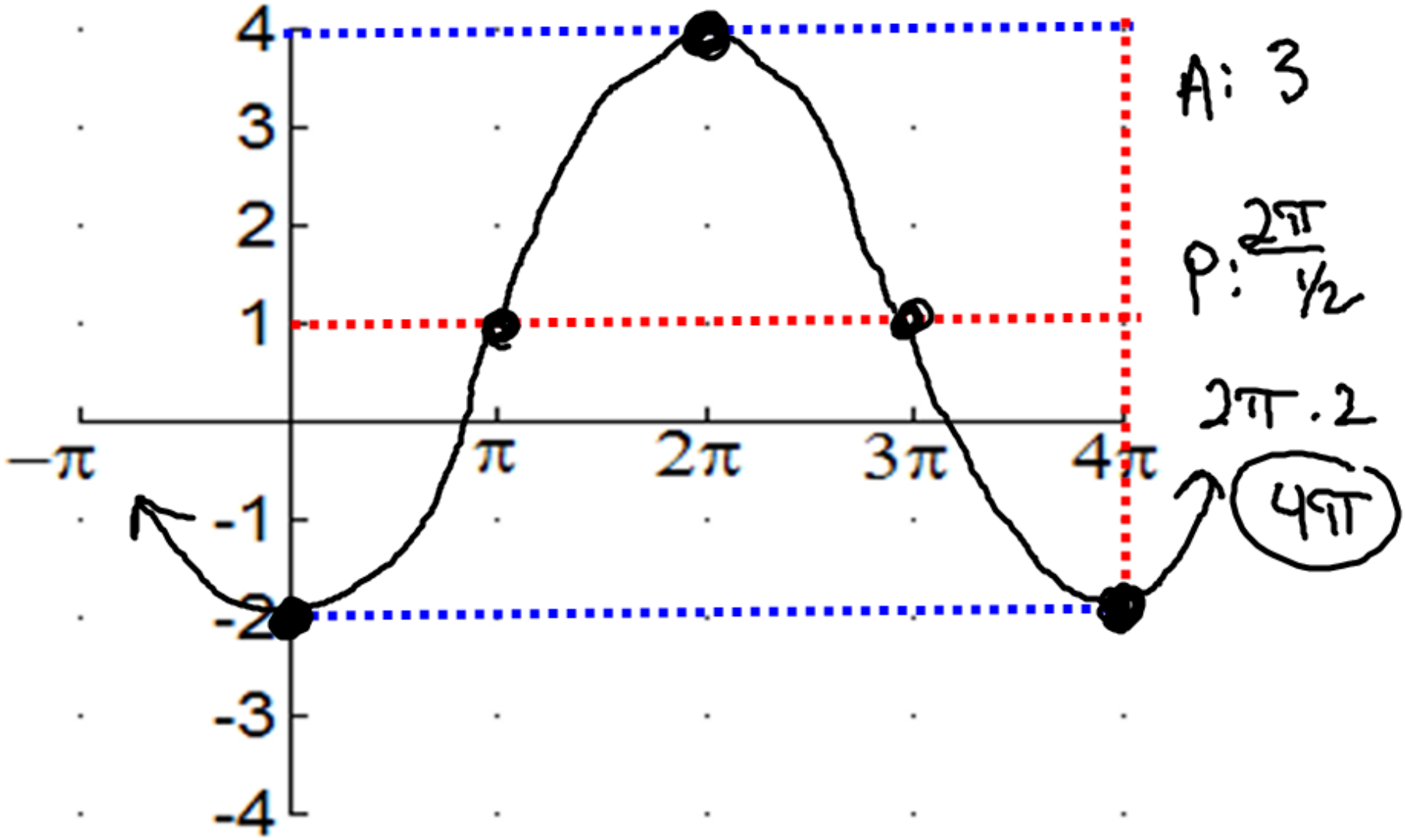
P: 2π

Graph the following:

$$y = -3\cos\frac{x}{2} + 1$$

M: I

Down 1st



A: 3

P: $\frac{2\pi}{1/2}$

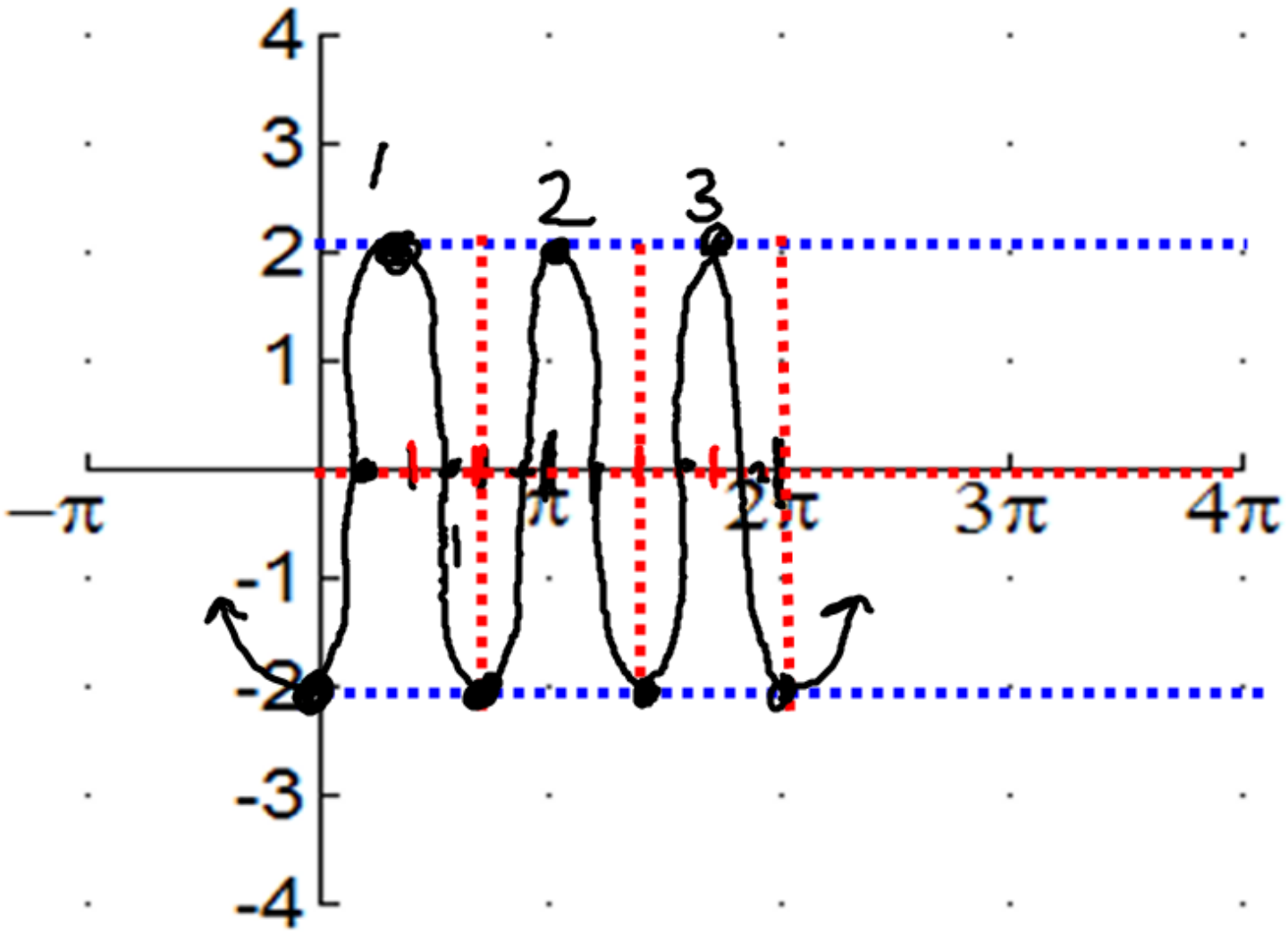
$2\pi \cdot 2$

4π

Graph the following:

$y = -2\cos 3x$

Start @ min



M: 0

A: 2

P: $\frac{2\pi}{3}$