

1. [8 points]

- a. [4 points] Let $f(x)$ be an **odd**, periodic function with period 6. Some values for $f(x)$ are given below.

x	-2	-1	0	1	2
$f(x)$	-5	a	b	-3	5

Find the following, or write NEI if there is not enough information provided to do so:

- i. $a =$ _____
- ii. $b =$ _____
- iii. $f(8) =$ _____
- iv. $f(f(-2)) =$ _____

- b. [4 points] Suppose that $h(x)$ is an **even**, periodic function with period 4, amplitude 7, and midline $y = -2$. Define

$$j(x) = -3h\left(\frac{1}{2}x\right).$$

Is $j(x)$ even, odd, or neither? Circle the one correct answer.

EVEN

ODD

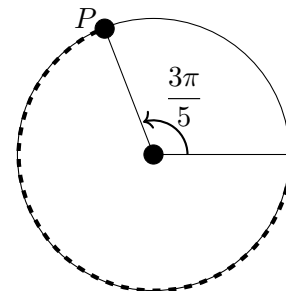
NEITHER

Find the period, amplitude, and midline of $j(x)$:

Period: _____ **Amplitude:** _____ **Midline:** _____

2. [9 points] Consider the diagram shown to the right.

- a. [2 points] Find the exact value of another angle θ , in radians, with $0 \leq \theta \leq 2\pi$, such that the value of $\cos(\theta)$ is the same as the value of $\cos\left(\frac{3\pi}{5}\right)$.



Answer: $\theta =$ _____

Now suppose that the circle shown is centered at the point $(-2, 1)$ and has radius 7.

- b. [4 points] Find the x - and y -coordinates of the point P .

Answer: $(x, y) =$ _____

- c. [3 points] Find the arclength of the bold, dashed arc going from the point P counterclockwise to the right-most point of the circle.

Answer: _____