1. [0 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. $a =$ **3**

ii. $b =$ **0**

iii. $f(4) =$ **5**

iv. $f(f(2)) =$ -3

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

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

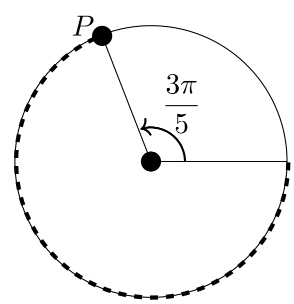
Is $j(x)$ even, odd, or neither? Circle the one correct answer.

$\boxed{\text{EVEN}}$ ODD NEITHER

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

Period: 8 **Amplitude:** 21 **Midline:** $y = 6$

2. [0 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: $\theta =$ $7\pi/5$

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: $(x, y) =$ $(3\cos(7\pi/5) - 2, 7\sin(3\pi/5) + 1)$

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: $14\pi - 7 \cdot 3\pi/5 \ = \ 7 \cdot 7\pi/5$