**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

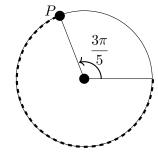
Find the period, amplitude, and midline of j(x):

Period:

Amplitude:

Midline:

- 2. [9 points] Consider the diagram shown to the right.
  - a. [2 points] Find the exact value of another angle  $\theta$ , in radians, with  $0 \le \theta \le 2\pi$ , 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:**  $(x,y) = \underline{\hspace{1cm}}$ 

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: