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.

   \[
   \begin{array}{c|c|c|c|c|c}
   x & -2 & -1 & 0 & 1 & 2 \\
   \hline
   f(x) & -5 & a & b & -3 & 5 \\
   \end{array}
   \]

   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.

   [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 \( \theta \), 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: \( \theta = \frac{7\pi}{5} \)

   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: \( (x, y) = \left( 3 \cos \left( \frac{7\pi}{5} \right) - 2, 7 \sin \left( \frac{3\pi}{5} \right) + 1 \right) \)

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: \( 14\pi - 7 \cdot \frac{3\pi}{5} = 7 \cdot \frac{7\pi}{5} \)