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.

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

   Find the following, or write nei if there is not enough information provided to do so:
   
   i. \( a = \phantom{0}3 \) 
   
   ii. \( b = \phantom{0}0 \) 
   
   iii. \( f(4) = \phantom{0}5 \) 
   
   iv. \( f(f(2)) = \phantom{0}-3 \) 

   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: \phantom{0}8 \] Amplitude: \phantom{0}21 \] Midline: \phantom{0}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: \( \theta = \phantom{0}7\pi/5 \)

   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: \( (x, y) = \phantom{0}(3\cos(7\pi/5) - 2, 7\sin(3\pi/5) + 1) \)

   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: \( 14\pi - 7\cdot3\pi/5 = 7\cdot7\pi/5 \)