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.
   
<table>
<thead>
<tr>
<th>( x )</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>( f(x) )</td>
<td>-5</td>
<td>a</td>
<td>b</td>
<td>-3</td>
<td>5</td>
</tr>
</tbody>
</table>
   
   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 \( 0 \leq \theta \leq 2\pi \), 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: __________