PROBLEM STATEMENTS

1. Use the function value to find the indicated trigonometric value in the specified quadrant.

   **Function Value:** sec θ = \(-\frac{61}{11}\)  
   **Quadrant:** III  
   **Trigonometric Function:** tan θ

2. Find the reference angle for:
   a) \(\theta = 330^\circ\)
   b) \(\theta = \frac{7\pi}{4}\)
   c) \(\theta = \frac{13\pi}{9}\)
   d) \(\theta = -255^\circ\).
   e) \(\theta = 4.1\) radians
3. Use the reference angle to find the indicated trigonometric value for the specified angles.

(a) \( \sin \left( \frac{7\pi}{6} \right) = \)

(b) \( \cos \left( \frac{11\pi}{4} \right) = \)

(c) \( \tan \left( -\frac{2\pi}{3} \right) = \)

4. Given \( y = 3 \sin(4x + \pi) \), describe the period, amplitude, and phase shift of the graph. Then graph the function.

   Period:

   Amplitude:

   Phase Shift:

   **Period Endpoints**
   
   Start:

   End:

5. Write an equation for a function with the given characteristics. A sine curve with a period of \( \pi \), an amplitude of 6, a right phase shift of \( 3\pi \).
6. Given \( y = \frac{1}{2} \cos\left(\frac{\pi}{2}x - 3\pi\right) \), describe the period, amplitude, and phase shift of the graph. Then graph the function.

   Period:

   Amplitude:

   Phase Shift:

   **Period Endpoints**

   Start:

   End:

7. Write an equation for a function with the given characteristics. A cosine curve with a period of 3, an amplitude of \( \frac{1}{4} \), and a vertical translation down 7 units.

8. Given the graph, write the equation of the sine function which matches the graph.
9. Given the graph, write the equation of the cosine function which matches the graph.

![Graph of a cosine function]

10. Graph \( y = 3 \tan (3x) - 2 \).

   Period: 
   Amplitude: 
   Phase Shift: 
   **Period Endpoints** Start: 
   End: