1. (3pts) Find the reference angle corresponding to an angle of $170^\circ$.

   **Answer:** $10^\circ$

2. (1pt) True or False: If $\alpha$ is the reference angle corresponding to $\theta$ then it is always the case that $\sin(\alpha) = \sin(\theta)$.

   **Answer:** False

3. (5pts) Sketch both of the following on the axes below.
   - The graph of $y = \sin(\theta)$.
   - The graph of $y = f(\theta)$ where $f(\theta) = 3\sin(\theta) + 1$.

   **Answer:** On graph below:

4. (5pts) The circle below is centered at the point $(2, 1)$ and has a radius of 3. Find the coordinates of the point, $c$. **Note:** In case it is unclear, the angle indicated in the diagram is $45^\circ$. 

   **Answer:** 

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*Friday, April 25, 2014*
Answer: \((-0.12, -1.12)\)

5. (6pts) Jordan is on a Ferris wheel which has a diameter of 220 ft and whose center is 150 ft off the ground. Find a function \(h\) such that \(h(\theta)\) is the height (in feet) of Jordan’s carriage when it makes an angle of \(\theta\) with the horizontal (measured in the usual way).

Answer: \(f(\theta) = 110 \sin \theta + 150\)

Bonus: (2pts) Let \(\theta\) be an angle. Find an expression (it should contain \(\theta\)) describing the area of the reference triangle corresponding to \(\theta\). There is no partial credit available on this problem.

Answer: \(\frac{1}{2} |\cos(\theta) \sin(\theta)|\)