Name: _____

Show all work and circle/box your final answer. All answers must be simplified unless stated otherwise. If you finish early, you may turn it in and leave.

1. (*0 points*) Find the domain of the following (write in interval notation):
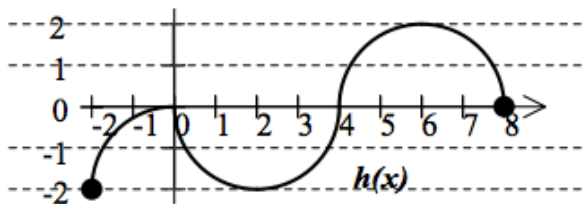
(a) $y = \dfrac{1}{3x + 12}$

(b) $y = \sqrt{3x + 12}$

2. (*0 points*) Determine whether the following are functions:
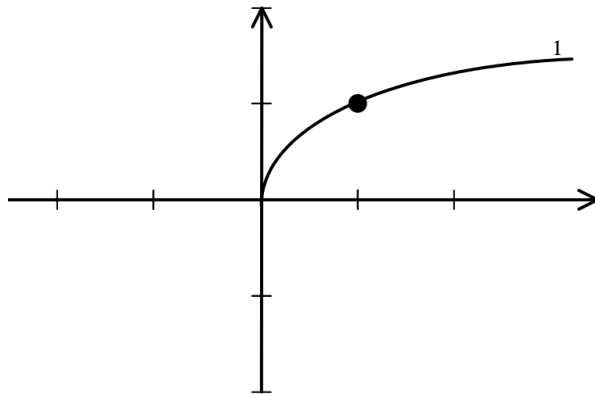
(a) $y = 4x$

(b) $(x - 1)^2 + (y + 1)^2 = 9$

3. (*0 points*) Find the domain and range for the following graph

4. (*0 points*) Graph

$$f(x) = \begin{cases} 1 & x < 0 \\ -1 & x = 0 \\ 2 & x > 0 \end{cases}$$

5. (*0 points*) Given the graph of $f(x)$ below (indicated by the 1), graph $1 - f(-x + 1)$)

6. (*0 points*) Graph the following over one period. List the period and amplitude:

$$y = -5\sin\left(\frac{x}{3}\right)$$

7. (*0 points*) Find the axes and sketch the ellipse:

$$\frac{(x+1)^2}{1} + \frac{(y-1)^2}{4} = 1$$