Please show **all** your work! Answers without supporting work will not be given credit.
Write answers in spaces provided.

Name:_____

Let

$$f(x) = \begin{cases} x + 42, & \text{if } x \le -42 \\ x - 42, & \text{if } -42 < x < 49 \\ \sqrt{x}, & \text{if } x \ge 49 \end{cases}$$

1. Find the following limits analytically if it exists:

   (a) [**3 points**] $\lim\limits_{x \to -42} f(x)$

   (b) [**3 points**] $\lim\limits_{x \to 49} f(x)$

2. [**4 points**] Find value(s) where $f(x)$ is discontinuous (if they exist). Classify each discontinuity.