1.13 Removing Discontinuities

Calculus

Name: _____

1. Let f be the function defined by
$$f(x) = \begin{cases} \dfrac{x^2-10x+21}{x-3}, & x \neq 3 \\ a, & x = 3 \end{cases}.$$
For what value of a is f continuous at $x = 3$?

2. Let f be the function defined by
$$f(x) = \begin{cases} \dfrac{x^2-5x}{x}, & x \neq 0 \\ b, & x = 0 \end{cases}.$$
For what value of b is f continuous at $x = 0$?

3. If the function f is continuous for all real numbers and if $f(x) = \dfrac{x^2-81}{x-9}$ when $x \neq 9$, then $f(9) =$

4. Let f be the function defined by
$$f(x) = \begin{cases} \dfrac{x^2+12x+20}{c(x+2)}, & x \neq -2 \\ c, & x = -2 \end{cases}.$$
For what value of c is f continuous at $x = -2$?

5. Let f be the function defined by
$$f(x) = \begin{cases} \dfrac{\sin(4x)}{5x}, & x \neq 0 \\ a, & x = 0 \end{cases}.$$
For what value of a is f continuous at $x = 0$?

6. If the function f is continuous for all real numbers and if $f(x) = \dfrac{x^2-15x+56}{x-7}$ when $x \neq 7$, then $f(7) =$

Answers to 1.13 CA #2

1. $a = -4$	2. $b = -5$	3. 18	4. $c = \pm\sqrt{8}$	5. $a = \frac{4}{5}$	6. -1