Calculus 2-5

For these questions: Find the x-value that is being approached (look at the "$x \to$" under the "lim"). Once you are at the x-value, travel vertically up or down, until you come to the red line. Then move horizontally, right or left, until you reach the y-axis. Read the value off the y-axis.

Remember: the + after the number means you are approaching from right to left ← and a - after the number means you are approaching from left to right →

1. a) $\lim_{x \to -2^+} f(x) = 0$

b) $\lim_{x \to 0^-} f(x) = 2$

c) $\lim_{x \to 0^+} f(x) = 1$

d) $\lim_{x \to 0} f(x)$ does not exist because $\lim_{x \to 0^-} \neq \lim_{x \to 0^+}$

e) $\lim_{x \to 2^-} f(x) = 3$

f) $\lim_{x \to 2^+} f(x) = 3$

g) $\lim_{x \to 2} f(x) = 3$ ← because $\lim_{x \to 2^+} = \lim_{x \to 2^-}$

h) $\lim_{x \to 4^-} f(x) = 4$

1.2-5 cont.

2. a) $\lim_{x \to -3^+} g(x) = 2$ b) $\lim_{x \to -1^-} g(x) = 2$

c) $\lim_{x \to -1^+} g(x) = 1$ d) $\lim_{x \to -1} g(x)$ does not exist

e) $\lim_{x \to 2^-} g(x) = 0$ f) $\lim_{x \to 2^+} g(x) = 0$

g) $\lim_{x \to 2} g(x) = 0$ h) $\lim_{x \to 1} g(x) = 1$

3. a) -2 continuous - no break in line

b) 0 discontinuous - break in line

c) 2 discontinuous - hole in line

d) 4 continuous - no break in line

e) 6 discontinuous - break in line