This worksheet is designed to help you make sense of the methods we use to algebraically solve absolute value equations.

1. Consider the equation $|w|=7$. Why can we algebraically follow this with $w=7$ or $w=-7$ ? (In other words, what about absolute value tells us that $w$ would have to be 7 or -7 ? What does the absolute value of a number really tell us?)

2a. Use this idea to rewrite $|4 x-2|=7$ as two equations. (Notice the absolute value signs are gone at this point.) Then solve these equations separately to find the two solutions to $|4 x-2|=7$.

2b. Check your two solutions in the original equation. Show your work. Label which solution you are checking so I can follow your work. Do the solutions make the original equation true?
3. Solve the equation $|6+3 x|-4=10$ algebraically. Isolate the absolute value part before you use the procedure above and show your work. Write your solutions as fractions in simplest terms.
4. Why does the equation $|4 x+5|=-3$ not have a solution? In other words, what about absolute value tells you that this equation can have no solution?

