Math5700 Inequalities Homework
Spring, 2017

A. Solve these inequalities.

(1) $|4-2x|+1 \geq 11$

(2) $(y+4)^4+5<0$

(3) $\dfrac{2x^2+10x-16}{x-4} \leq 3$

(4) $\log_4(w-1)^4+2 \leq \log_4(2w-2)$

(5) $\log_4(w-1)^3+2 \leq \log_4(2w-2)$

(6) $-2(9^{x^6-1}) \geq 36$

(7) $x(2x-1)(x-3)^2<0$

(8) $\dfrac{1}{x+2} \geq \dfrac{2}{x-2}$

B. If you're given this inequality $\dfrac{13}{31}<\dfrac{8}{19}$ and you need to verify if it is in fact correct, how would you explain this to your students (without a calculator)? And, would it be reasonable to "cross multiply" to check the validity of the statement? Why or why not?

What if the inequality is $-\dfrac{13}{31}<-\dfrac{8}{19}$ instead?

What if the inequality is $\dfrac{13}{31}<\dfrac{8}{19x}$ instead?

C. In which setting or under what conditions do you need to consider different cases in solving an inequality?