


A “Procedural Example”

- Solve $4(x+1)+2(x+1) = 3(x+4)$
- Joanne:
 - Distribute, Add -4, Add -2, Add -3x, Combine like terms, Divide by 3, $x=2$.
 - Said she could not solve it “using a different order of steps.”
- Kyle:
 - Distribute, Combine like terms, Add -3x, Add -6, Combine like terms, Divide by 3, $x=2$.
 - Said he could solve it another way, and did so using Joanne’s method.




Monday Aug. 6, 2pm

WITQ #07-0711 - Improving Understanding in Algebra

Example adapted from Star (2002) “Re-Conceptualizing” Procedural Knowledge in Mathematics” (ERIC: ED 472 948)

A “Procedural Example”

- Solve $4(x+1)+2(x+1) = 3(x+4)$
- Leah:
 - Initially used Joanne’s method.
 - Then used Kyle’s method.
 - Then did this: Combine two terms on left side: $6(x+1)$; Divide by 3, Distribute, Add -2, Add -x, Combine like terms, $x=2$.
 - “Can you do it another way?” → (somewhat exasperated) “There are LOTS of ways, but they are all the same.”




Monday Aug. 6, 2pm

WITQ #07-0711 - Improving Understanding in Algebra

Example adapted from Star (2002) “Re-Conceptualizing” Procedural Knowledge in Mathematics” (ERIC: ED 472 948)

A “Procedural Example”

- Leah’s & Kyle’s ability to answer the question “How else could you do this problem” reveals *flexibility* that Joanne lacks.
 - It is evidence of greater “procedural understanding.”
- Other questions one might ask:
 - What is the “goal” of the procedure?
 - What kind of answer do you expect?
 - Why is your method valid?
 - How could you verify you have solved it correctly?
 - Which method is the “best,” and how do you decide?



Monday Aug. 6, 2pm

WITQ #07-0711 - Improving Understanding in Algebra

Example adapted from Star (2002) “Re-Conceptualizing” Procedural Knowledge in Mathematics” (ERIC: ED 472 948)
