**Ms. Phelps: Equations and estimation**

Ms. Phelps: If you remember the last, I think it was two sections ago, we talked about estimating mental math. Esa, what’s mental math? What do I mean by mental math? ... What she said, but say it louder ...

Student: [inaudible] problems in your head. When you do problems in your head?

Ms. Phelps: Yeah, when you do it in your head, and what’s a way that we can do problems in our head? When we talked about estimating and rounding? Okay? That’s mental math, and why would we need to use mental math?

Student: [inaudible]

Ms. Phelps: Yeah, it gives us a quick answer, especially if we don’t have a pen and paper, or we’re at the store and we’re trying to figure out something real quick, mental math works real well, and when we change those numbers to numbers that are compatible or easier to add, it helps us mentally compute those very quickly. So let’s look at example number 2 on the baseball cards. How many baseball cards do you need to add to the 14 cards you already own to have a total of 25? Okay. So we have 14 baseball cards and we have a total of 25, and then it says how many do you have to add to it, so what would our expression on this side look like?

Student: [inaudible]

Ms. Phelps: + N, and what is N indicating, Chris?

Student: [inaudible] baseball cards.

Ms. Phelps: The number of baseball cards we need to get to 25, exactly. So we just wrote an equation here. We know the answer, we know we need 25 cards. We only have 14. In order to do that we have to figure out what this N is.

Student: 10 – 11.

Ms. Phelps: Using mental math, what would we change these numbers to, just to give a quick fix?

Student: [inaudible]

Ms. Phelps: But what would we change these numbers to to make it easy to add very quickly in our head, or subtract to find the answer? What could we change 14 to? Maybe we could change it to 15? Okay, and can we take 15 from 25 very easily? Yes, which would be what?

Students: [various] 10

Ms. Phelps: About 10, exactly. So if we take that 10, 15 – 10, or + 10, that would give us 25, of course, so we’re pretty close to the answer here, but we need to find the answer, N, the exact answer, but this will give us, we know it’s going to be around 10. Okay, that’s a quick way of figuring this out, mental math.

Let’s look at, let’s see, we have 14 – look at the mental math number 2 ... question A. Let’s see, how about, who haven’t I called on? Lawrence? Look at A for me. Page 125, on that Quick Check ... Example number 2, at the very bottom of the Quick Check, we have mental math. We have 17 – X = 8. This is ... 17 – X = 8. What could we change these numbers to, Lawrence, to help us figure this out very quickly? What is 8 close to? What could we round 8 to, to make it easy to work with?

Student: [inaudible]

Ms. Phelps: 10, let’s go to 10, because 10’s an easy number to work with. What about 17?

Student: 7?

Ms. Phelps: That’s not very close to 7 ... How about 20, what do you think about 20? Yeah, 17’s close to 20. Think of a number that we can add or subtract very easily, and once we do that now, what’re we going to see? We know that 20 – what is going to equal 10?

Student: 10.

Ms. Phelps: 10. And we can figure that much quicker than we can this, using mental math, and that’s why we just need an average. When we need the exact answer, of course we want to go back and figure it out. But to get an average, it’s going to be around 10, and we can figure 10 – 20 much easier than we can 17 – 8. Okay? Or + 8.