**Goal:** become more aware of and articulate concepts, procedures, use of SMP, and relationships between them in Algebra 1 content:

**Protocol**: Use a Chalk Talk (Sliman): Teachers work in groups of 3, each group with a different colored marker. NO talking, only writing. Set up posters so that the task is above it and the posters have been divided into 4 parts:

Procedural fluency, Conceptual understanding, levels of SMP, and the last section left blank. However, after everyone has gone to all posters, we can go back to the last section and have teachers discuss in their groups how the concepts, procedures, and SMP are related, what meanings and structure students would need to use or could improve, then have them write their thoughts about the relationships in the last section.

**Whole group discussion:**

1. How did using SMP relate to developing conceptual understanding and procedural fluency?
2. What ideas do you have for students’ development of the SMP?
3. What role(s) do the SMP play in students’ learning?

**Task A**



**Task B**

Finish the table so that it represents a linear function:

|  |  |
| --- | --- |
| x | y |
| 0 | 12 |
| 1 | 15 |
| 3 |  |
| 7 |  |
| 20 |  |

**Task C**

You want to take a Pilates class and are trying to decide which gym to go to. You call a couple of gyms and find out that Jim’s Gym charges $20 to join the gym, then $4 per class. John’s Gym does not require you to join, but charges $6 per class.

Write two equations that represent this situation.

Solve these equations and explain which gym you might choose, and what circumstances would influence your decisions.

Justify your selection.

**Task D**

The price of copper fluctuates. Between 2002 and 2011, there were times when its price was lower than $1.00 per pound and other times when its price was higher than $4.00 per pound. Copper pennies minted between 1962 and 1982 are 95% copper and 5% zinc by weight, and each penny weighs 3.11 grams. At what price per pound of copper does such a penny contain exactly one cent worth of copper? (There are 454 grams in one pound.) (*Illustrative Mathematics Project*)

**Task E**

Suppose *P* and *Q* give the sizes of two different animal populations, where *Q*>*P*. In each of the following, say which of the given pair of expressions is larger. Brieﬂy explain your reasoning in terms of the two populations.

1. *P*+*Q* or 2*P*
2. *P*/(*P*+*Q)* or (*P*+*Q*)/2
3. (*Q*−*P*)/2 or *Q*−*P*/2
4. *P*+50*t* or *Q*+50*t*

(*Illustrative Mathematics Project*)

**Task F**

The function  is graphed below.

1. Find 
2. Find x such that 

