

Subtraction

Counting Back

Question: 8-3

Sample Solution:

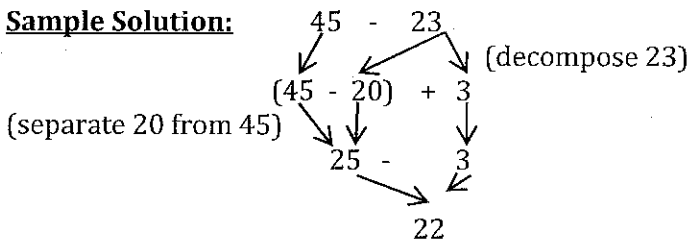
For counting back students would start at 8 and count backward 3 until they arrived at 5.

$$8 \dots 7, 6, 5$$

Removal in Parts

Question: 45 - 23

Sample Solution:



Constant Difference

Question: 57-22

Sample Solution:

Add 3 to each number and the difference remains the same. Only the numbers become friendlier to work with.

$$57 - 22$$

$$+3 \quad +3 \text{ (add 3 to each \# keeps difference the same)}$$

$$60 - 25$$

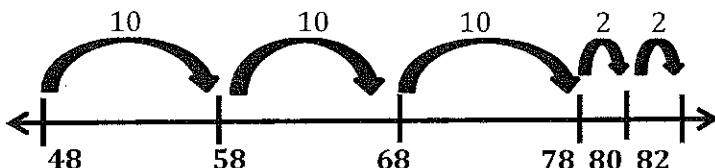
$$60 - 25 = 35$$

Adding Up to find the Difference

Question: 82-48

Sample Solution: 82-48

$$48 + (10 + 10 + 10 + 4) = 82$$



Student adds up from 48 to 82 to find the difference of 34.

Part Whole Box Model

Question: 57-22

Sample Solution:

Whole 57	
Part 22	Part 35

Students understand the whole and one part of the whole. Because of this, the student is able to identify the other missing part of the whole.

Adjusting 1 Number To Create An Easier Number

Question: 39 - 24

Sample Solution:

Adding one to 39 to make it a 40

$$(39 (+1)) + 24$$

$$(40) - 24 = 16$$

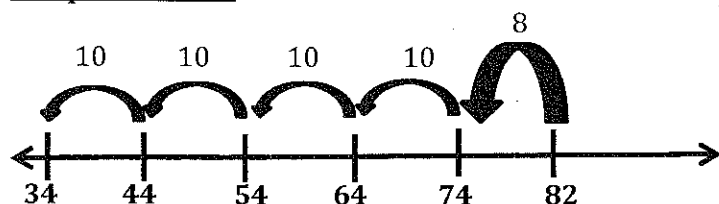
$$16 (-1) = 15$$

Added 1 to 39 so 1 was removed from the sum

Using a Number Line

Question: 82-48

Sample Solution: 82-48



Student adds up from 48 to 82 to find the difference

These strategies should be discovered, explored, and modeled by the students

Addition

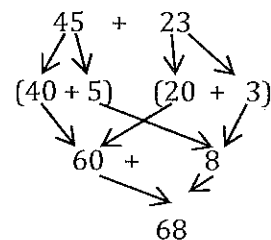
Counting All/Counting On

Question: $8+3$ **Sample Solution:**

For counting all the students would combine 8 and 3 by counting the set (1, 2, 3, 4, 5, 6, 7, 8...9, 10, 11)

For counting on the student could say "8...9, 10, 11"

Breaking Up Into Place Value

Question: $45 + 23$ **Sample Solution:**

Making Tens

Question: $9+4$ **Sample Solution:**

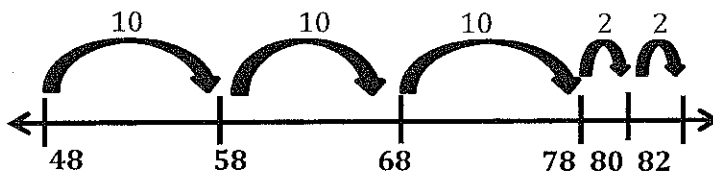
Student could say "I decomposed the 4 (3 and 1) and gave one to the 9 to make a ten and added the remaining 3."

$$9+4 = 10+3$$

Adding Up In Chunks

Question: $48+34$ **Sample Solution:** $48+34$

$$48 + (10 + 10 + 10 + 4)$$



Doubles/Near Doubles

Question: $8+7$ (when students use their double facts to solve related problems)**Sample Solution:**

$$8+7 = 7+7+1$$

$$8+7 = 8+8-1$$

Compensation

Question: $49 + 57$ **Sample Solution:**

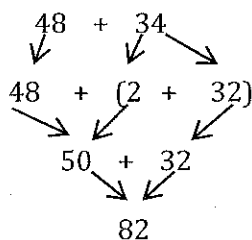
$$39 + 57$$

$$+1 \quad -1$$

$$40 + 56 = 96$$

Compensation: removing one quantity from one addend and adding it to the other addend. Although quantities are manipulated the total sum remains the same.

Landmark/Friendly Numbers

Question: $48+34$ **Sample Solution:**

Adjusting 1 Number To Create An Easier Number

Question: $39 + 24$ **Sample Solution:**

Adding one to 39 to make it a 40

$$(39 (+1)) + 24$$

$$(40) + 24$$

$$64 (-1) = 63$$

Added 1 to 39 so 1 was removed from the sum

These strategies should be discovered, explored, and modeled by the students