**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….7, 6, 5 | **Removal in Parts****Question:** 45 - 23**Sample Solution:** 45 - 23 (decompose 23) (45 - 20) + 3(separate 20 from 45) 25 - 3 22  |
| **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 +3 (add 3 to each # keeps difference the same)60 - 2560-25=35 | **Adding Up to find the Difference****Question:** 82-48 **Sample Solution:** 82-48 48 + (10 + 10 + 10 + 4)= 82 10 10 10 2 2**48 58 68 78 80 82**Student adds up from 48 to 82 to find the difference of 34. |
| **Part Whole Box Model****Question:** 57-22**Sample Solution:**

|  |
| --- |
| Whole57 |
| Part22 | Part35 |

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 =1616 (-1) = 15Added 1 to 39 so 1 was removed from the sum  |
| **Using a Number Line****Question:** 82-48 **Sample Solution:** 82-48 8 10 10 10 10  **34 44 54 64 74 82**Student adds up from 48 to 82 to find the difference |  |

**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:** 45 + 23 (40 + 5) (20 + 3) 60 + 8 68  |
| **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) 10 10 10 2 2**48 58 68 78 80 82** |
| **Doubles/Near Doubles****Question:** 8+7 (when students use their double facts to solve related problems)**Sample Solution:** 8+7 = 7+7+18+7 = 8+8-1 | **Compensation****Question:** 49 +57 **Sample Solution:** 39 + 57+1 -140 + 56= 96Compensation: 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:** 48 + 34 48 + (2 + 32) 50 + 32  82 | **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) + 2464 (-1) = 63Added 1 to 39 so 1 was removed from the sum  |