**Subtraction**

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| --- | --- |
| **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 - 25  60-25=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:**   |  |  | | --- | --- | | 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  8  10 10 10 10    **34 44 54 64 74 82**  Student adds up from 48 to 82 to find the difference |  |

**Addition**

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| **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+1  8+7 = 8+8-1 | **Compensation**  **Question:** 49 +57    **Sample Solution:**  39 + 57  +1 -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:** 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) + 24  64 (-1) = 63  Added 1 to 39 so 1 was removed from the sum |