

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:**

(separate 20 from 45)      (decompose 23)

$$\begin{array}{r} 45 - 23 \\ \downarrow \quad \downarrow \\ (45 - 20) + 3 \\ \downarrow \quad \downarrow \\ 25 - 3 \\ \downarrow \\ 22 \end{array}$$

**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.

$$\begin{array}{r} 57 - 22 \\ +3 \quad +3 \quad (\text{add 3 to each \# keeps difference the same}) \\ \hline 60 - 25 \end{array}$$

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

$$\begin{array}{l} (39 (+1)) + 24 \\ \downarrow \\ (40) - 24 = 16 \\ \downarrow \\ 16 (-1) = 15 \end{array}$$

Added 1 to 39 so 1 was removed from the sum

**Using a Number Line**

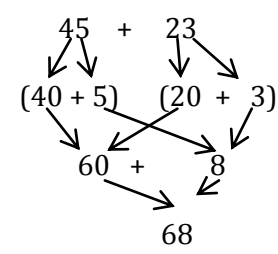
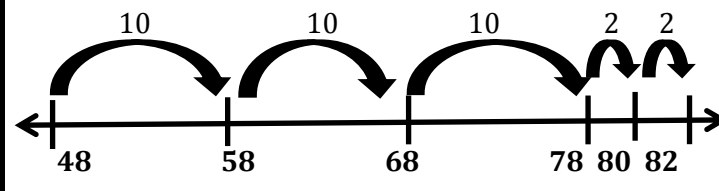
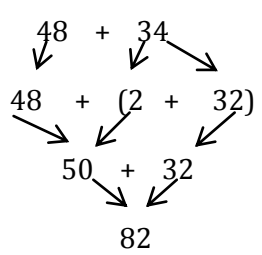
**Question:** 82-48

**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

<p><b>Counting All/Counting On</b></p> <p><b>Question:</b> <math>8+3</math></p> <p><b>Sample Solution:</b></p> <p>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)</p> <p>For counting on the student could say "8...9,10,11"</p>	<p><b>Breaking Up Into Place Value</b></p> <p><b>Question:</b> <math>45 + 23</math></p> <p><b>Sample Solution:</b></p> 
<p><b>Making Tens</b></p> <p><b>Question:</b> <math>9+4</math></p> <p><b>Sample Solution:</b></p> <p>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."</p> <p style="text-align: center;"><math>9+4 = 10+3</math></p>	<p><b>Adding Up In Chunks</b></p> <p><b>Question:</b> <math>48+34</math></p> <p><b>Sample Solution:</b> <math>48+34</math></p> <p style="text-align: center;"><math>48 + (10 + 10 + 10 + 4)</math></p> 
<p><b>Doubles/Near Doubles</b></p> <p><b>Question:</b> <math>8+7</math> (when students use their double facts to solve related problems)</p> <p><b>Sample Solution:</b></p> <p style="text-align: center;"><math>8+7 = 7+7+1</math>  <math>8+7 = 8+8-1</math></p>	<p><b>Compensation</b></p> <p><b>Question:</b> <math>49 + 57</math></p> <p><b>Sample Solution:</b></p> <p style="text-align: center;"><math>39 + 57</math>  <math>\begin{array}{r} +1 \\ -1 \\ \hline 40 + 56 = 96 \end{array}</math></p> <p>Compensation: removing one quantity from one addend and adding it to the other addend. Although quantities are manipulated the total sum remains the same.</p>
<p><b>Landmark/Friendly Numbers</b></p> <p><b>Question:</b> <math>48+34</math></p> <p><b>Sample Solution:</b></p> 	<p><b>Adjusting 1 Number To Create An Easier Number</b></p> <p><b>Question:</b> <math>39 + 24</math></p> <p><b>Sample Solution:</b></p> <p style="text-align: center;">Adding one to 39 to make it a 40</p> <p style="text-align: center;"><math>(39 (+1)) + 24</math>  <math>(40) + 24</math>  <math>64 (-1) = 63</math></p> <p style="text-align: center;">Added 1 to 39 so 1 was removed from the sum</p>

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