

[Illustrative Mathematics](#)

2.NBT Comparisons 2

[Alignment 1: 2.NBT.A.4](#)

Use  $<$ ,  $=$ , or  $>$  to complete the following number sentences.

a.  $657$  \_\_\_\_\_  $457 + 100 + 100$

b.  $926$  \_\_\_\_\_  $726 + 100 + 10$

c.  $511 + 10 + 10 + 10$  \_\_\_\_\_  $531 - 10 - 10$

d.  $923 + 10$  \_\_\_\_\_  $953 - 10 - 10$

e.  $100 + 100 + 300 + 10$  \_\_\_\_\_  $510$

f.  $347 + 30$  \_\_\_\_\_  $397 - 10 - 10$

g.  $126 - 10 - 10 - 10 - 10$  \_\_\_\_\_  $96 - 10$

Solution: Answers and explanations

a.  $657 = 457 + 100 + 100$

To find the answer to part (a), we must add the numbers on the right side.  $457$  is the same as 4 hundreds plus 5 tens plus 7 ones. The right is then 4 hundreds plus 5 tens plus 7 ones plus 1 hundred plus 1 more hundred. We combine all of the hundreds to have a total of 6 hundreds plus 5 tens plus 7 ones, or  $657$ . Thus the left side is the same as the right side.  $657 = 657$

b.  $926 > 726 + 100 + 10$

To find the answer to part (b), we add the numbers on the right side.  $726$  is the same as 7 hundreds plus 2 tens plus 6 ones. The right side can now be described as 7 hundreds plus 2 tens plus 6 ones plus 1 more hundred and 1 more ten. We combine all of the hundreds to have a total of 8 hundreds plus 3 tens plus 6 ones, or  $836$ . Thus the left side is greater than the right side.  $926 > 836$

c.  $923 < 953 - 10 - 10$

To find the answer to part (c), we can subtract the numbers on the right side.  $953$  is the same as 9 hundreds plus 5 tens plus 3 ones. We also need to subtract 2 tens. If we have 5 tens and subtract 2 tens, we are left with 3 tens. Finally, we have 9 hundreds plus tens plus 3 ones, or  $933$ .  $923$  is, in fact, less than  $933$ . Although both numbers have 9 hundreds (9 in the hundred's place)  $923$  has only 2 tens (2 in the ten's place), while  $933$  has 3 hundreds (3 in the hundred's place).  $923 < 933$

d.  $100 + 100 + 300 + 10 = 510$

To find the answer to part (d), we can add the numbers on the left side. The left side is 1 hundred plus 1 hundred plus 3 hundreds plus 1 ten. We combine all of the hundreds to have a total of 5 hundreds and 1 ten, or  $510$ . Thus the left side is the same as the right side.  $510 = 510$

e.  $347 + 30 = 397 - 10 - 10$

To find the answer to part (e), we can add the numbers on the left and subtract the numbers on the right.

Let's begin with the left side.  $347$  is the same as 3 hundreds plus 4 tens plus 7 ones.  $30$  is the same 3 tens. The left side can now be described as 3 hundreds plus 4 tens plus 7 ones plus 3 more tens. We combine all of the tens to have a total of 3 hundreds plus 7 tens plus 7 ones, or  $377$ .

Now we can work on the right side.  $397$  is the same as 3 hundreds plus 9 tens plus 7 ones.  $-10$  means take 1 ten away. If we have 9 tens and subtract 2 tens, we are left with 7 tens. So we have 3 hundreds plus 7 tens plus 7 ones, or  $377$ .

Thus the left side is the same as the right side.  $377 = 377$

f.  $126 - 10 - 10 - 10 - 10 = 86$

To find the answer to part (f), we must subtract the numbers on the left side.  $126$  is the same as 1 hundred plus 2 tens plus 6 ones. We also need to subtract 4 tens. If we have 1 hundred plus 2 tens plus 6 ones and subtract 2 tens, we have 1 hundred plus no tens plus 6 ones. We still have to subtract 2 more tens, but have no tens left, so we must break down (unbundle) the 1 hundred. One hundred is the same as 10 tens. We now have 10 tens and 6 ones and if we subtract 2 tens, we have  $86$  for the left side.

On the right side of the equation we have  $96$  (with its 9 in the tens place) -  $10$  (with its 1 in the tens place), leaving  $86$ . With  $86$  on both sides of the equation, the equation is balanced as indicated by the = sign.  $86 = 86$

Solution: Answers and explanations

a.  $657 = 457 + 100 + 100$

To find the answer to part (a), we must simplify the right side.  $457$  is the same as four hundreds, five tens, and seven ones.  $100$  is the same as one hundred. The right side can now be described as four hundreds, five tens, seven ones, one hundred and one more hundred. We combine all of the hundreds to have a total of six hundreds, five tens, and seven ones, or  $657$ . Thus the left side is the same as the right side.  $657 = 657$

b.  $923 = 723 + 100 + 100$

To find the answer to part (b), we must simplify the right side.  $723$  is the same as seven hundreds, two tens, and three ones.  $100$  is the same as one hundred. The right side can now be described as seven hundreds, two tens, three ones, one hundred and one more hundred. We combine all of the hundreds to have a total of nine hundreds, two tens, and three ones, or  $923$ . Thus the left side is the same as the right side.  $923 = 923$

c.  $923 < 953 - 10 - 10$

To find the answer to part (c), we must simplify the right side.  $953$  is the same as nine hundreds, five tens, and three ones.  $-10$  means take one ten away. The right side now reads, "Nine hundreds, five tens, three ones. Take away one ten. Take away one more ten." If we have five tens and take one ten away, we are left with four tens. We then take one more ten away and have three tens. Finally, we have nine hundreds, three tens, and three ones, or  $933$ .  $923$  is, in fact, less than  $933$ . Although both numbers have nine  $100$ s (nines in the hundred's place)  $923$  has only two  $10$ s (a two in the ten's place), while  $933$  has three  $10$ s (a three in the hundred's place).  $923 < 933$

d.  $100 + 100 + 300 + 10 = 510$

To find the answer to part (d), we must simplify the left side.  $100$  is the same as one hundred.  $300$  is the same as three hundreds.  $10$  is the same as one ten. The left side can now be described as one hundred, one hundred, three hundreds, and one ten. We combine all of the hundreds to have a total of five hundreds and one ten, or  $510$ . Thus the left side is the same as the right side.  $510 = 510$

e.  $347 + 30 = 397 - 10 - 10$

To find the answer to part (e), we must simplify both sides.

Let's begin with the left side.  $347$  is the same as three hundreds, four tens, and seven ones.  $30$  is the same three tens. The left side can now be described as three hundreds, four tens, seven ones, and three tens. We combine all of the tens to have a total of three hundreds, seven tens, and seven ones, or  $377$ .

Now we can simplify the right side.  $397$  is the same as three hundreds, nine tens, and seven ones.  $-10$  means take one ten away. The right side now reads, "Three hundreds, nine tens, seven ones. Take away one ten. Take away one more ten." If we have nine tens and take one ten away, we are left with eight tens. We then take one more ten away and have seven tens. Finally, we have three hundreds, seven tens, and seven ones, or  $377$ .

Thus the left side is the same as the right side.  $377 = 377$

f.  $126 - 10 - 10 - 10 - 10 = 86$

To find the answer to part (f), we must simplify the left side.  $126$  is the same as one hundred, two tens, and six ones.  $-10$  means take one ten away. The left side now reads, "One hundred, two tens, six ones. Take away one ten. Take away another ten. Take away one more ten." If we have One hundred, two tens and six ones and take one ten away, we have one hundred, one ten, and six ones left. Now we take another ten away and are left with one hundred, no tens, and six ones. We still have to take one more ten away, but have no tens left, so we must break down (unbundle) the one hundred. One hundred is the same as ten tens. We now have ten tens and six ones and take one ten away, leaving nine tens and six ones, or  $96$ . But there is one more ten remaining, so we take one ten from the nine tens, leaving  $86$  for the left side.

On the right side of the equation we have  $96$  (with its nine in the tens place) -  $10$  (with its one in the tens place), leaving  $86$ . With  $86$  on both sides of the equation, the equation is balanced as indicated by the  $=$  sign.  $86 = 86$

