

Homework Helpers

**Grade 2
Module 5**

G2-M5-Lesson 1

1. Complete each *more* or *less* statement.

- 10 less than 175 is 165.
- 100 more than 308 is 408.
- 788 is 100 less than 888.
- 607 is 10 more than 597.

I can use place value language to explain the change. 10 more and 100 more is the same as adding. 10 less and 100 less is the same as subtracting.

2. Complete each regular number pattern.

- 565, 575, 585, 595, 605, 615
- 624, 524, 424, 324, 224, 124, 24
- 886, 876, 866, 856, 846, 836

I study the numbers and look for the more or less pattern. I know 24 is 100 less than 124, so $24 + 100 = 124$. Then, $124 + 100 = 224$, and so on.

I know 846 is 10 less than 856. $856 - 10 = 846$. It's just like taking away a tens disk on the place value chart.

3. Complete each statement.

a. $609 \xrightarrow{-10} \underline{599} \xrightarrow{-100} 499 \xrightarrow{+10} \underline{509} \xrightarrow{+10} 519$

b. $517 \xrightarrow{-10} \underline{507} \xrightarrow{-10} \underline{497} \xrightarrow{+100} \underline{597} \xrightarrow{+10} \underline{607} \xrightarrow{+100} \underline{707}$

I remember the arrow way from Module 4. The arrow way can show a change in the ones, tens, or hundreds place, and it shows whether it's more or less. So, $517 - 10 = 507$. That's a change in the tens place!

4. Solve using the arrow way.

$$\underline{220} + 515 = 735$$

$$515 \xrightarrow{+100} 615 \xrightarrow{+100} 715 \xrightarrow{+10} 725 \xrightarrow{+10} 735$$

I start with the part, 515, and add hundreds first until I get to 715. Then, I add tens until I get to 735. $100 + 100 + 10 + 10 = 220$.

G2-M5-Lesson 2

1. Solve each addition problem using place value strategies. Use the arrow way or mental math, and record your answers. You may use scrap paper if you like.

a. $400 + 374 = \underline{774}$

To solve $400 + 374$, I just add like units!
4 hundreds + 3 hundreds = 7 hundreds. The ones and tens digits stay the same, so the total is 774.

b. $\underline{126} + 600 = 726$

$$600 \xrightarrow{+100} 700 \xrightarrow{+26} 726$$

I use the arrow way to solve $\underline{\quad\quad} + 600 = 726$.
I begin at 600 and add 1 hundred to get to 700.
Then, I add on 26. $100 + 26 = 126$.

2. Solve each subtraction problem using place value strategies. Use the arrow way or mental math, and record your answers. You may use scrap paper if you like.

a. $431 - \underline{300} = 131$

The number in the hundreds place got smaller by 3. The other part must be 300 because 4 hundreds minus 3 hundreds equals 1 hundred. The other digits stay the same.

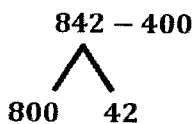
b. $\underline{862} - 200 = 662$

$$662 \xrightarrow{+200} 862$$

I know the 2 parts, but I don't know the whole.
I use the arrow way and think of addition to solve: $662 + 200 = 862$.

3. Fill in the blanks to make true number sentences. Use place value strategies, number bonds, or the arrow way to solve.

a. 400 less than 842 is 442.



$$\begin{aligned} 800 - 400 &= 400 \\ 400 + 42 &= 442 \end{aligned}$$

I draw a number bond to break apart 842. I subtract 400 from 800, which is 400. Then I add 400 to the other part, so $400 + 42 = 442$.

b. 700 less than 962 is 262.

c. 300 more than 545 is 845.

300 *more* than 545 is the same as $545 + 300$. $500 + 300 = 800$.
The ones and tens stay the same.

G2-M5-Lesson 3

1. Solve the set of problems using the arrow way.

$$440 + 300 = \underline{740}$$

$$440 \xrightarrow{+300} 740$$

300 more than 440 is 740. I just add like units, 4 hundreds plus 3 hundreds is 7 hundreds. The tens and ones stay the same.

$$440 + 360 = \underline{800}$$

$$440 \xrightarrow{+300} 740 \xrightarrow{+60} 800$$

To add 360, I add in chunks—hundreds first and then tens. 4 tens + 6 tens = 10 tens, or the next hundred!

$$440 + 380 = \underline{820}$$

$$440 \xrightarrow{+300} 740 \xrightarrow{+60} 800 \xrightarrow{+20} 820$$

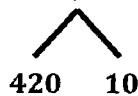
The second problem helps me solve this one. 380 is just 20 more than 360. I use the arrow way to add 20. Now, the total is 820.

2. Solve using the arrow way or mental math. Use scrap paper if needed.

$$430 + 290 = \underline{720}$$

$$660 + 180 = \underline{840}$$

$$370 + 270 = \underline{640}$$



$$660 \xrightarrow{+100} 760 \xrightarrow{+40} 800 \xrightarrow{+40} 840$$

I made a number bond on scrap paper. 290 is close to the next hundred, it just needs 10 more. I broke apart 430 into 420 and 10. I add 10 to 290 and now can solve $420 + 300$ in my head.

I can solve in my head! 3 hundreds plus 2 hundreds is 5 hundreds. I know 7 tens plus 7 tens is 14 tens, or 140. I can think: $500 + 140 = 640$.

This is similar to adding 66 and 27, except the units are tens! 6 tens and 7 tens is 13 tens. 60 tens and 20 tens is 80 tens. 13 tens + 80 tens = 93 tens.

The first problem can help me solve this one. I notice that 67 tens is 1 more ten than 66 tens. 28 tens is 1 more ten than 27 tens. That means the answer must be 2 more tens than 93 tens!

3. Solve.

$$66 \text{ tens} + 27 \text{ tens} = \underline{93} \text{ tens}$$

$$67 \text{ tens} + 28 \text{ tens} = \underline{95} \text{ tens}$$

What is the value of 85 tens? 850

G2-M5-Lesson 4

1. Solve using the arrow way.

$760 - 400 = \underline{360}$

I just subtract like units, 7 hundreds minus 4 hundreds is 3 hundreds. The tens and ones stay the same.

$760 \xrightarrow{-400} 360$

$760 - 460 = \underline{300}$

To subtract 460, I first take away the hundreds and then tens to make it easier!

$760 \xrightarrow{-400} 360 \xrightarrow{-60} 300$

$760 - 480 = \underline{280}$

The other problems help me solve this one. First, I subtract 400 and then 60 to get to the closest hundred, and now I subtract 20 more. So, I take away 480 in all, one chunk at a time.

$760 \xrightarrow{-400} 360 \xrightarrow{-60} 300 \xrightarrow{-20} 280$

2. Solve using the arrow way or mental math. Use scrap paper if needed.

$640 - 240 = \underline{400}$

$640 - 250 = \underline{390}$

$640 - 290 = \underline{350}$

$640 \xrightarrow{-200} 440 \xrightarrow{-40} 400$

$640 \xrightarrow{-200} 440 \xrightarrow{-40} 400 \xrightarrow{-50} 350$

I subtract in two steps. First, I take away the hundreds and then the tens. 640 minus 200 is 440. 440 minus 40 is 400.

I can use the last problem to help me. In my head, I subtract 10 more from 400 since 250 is just 10 more than 240.

I subtract 290 in chunks: 200, then 40, and then 50. In the last step, I subtract 50 to get to 350.

I know that 88 tens minus 20 tens is 68 tens. Then, 68 tens minus 8 tens is 60 tens. Now, I just take away another ten. So, I have 59 tens.

I could also think of it like this: 88 tens minus 28 tens is 60 tens. Since 29 tens is 1 more than 28 tens, the answer must be 1 less than 60 tens.

I subtract a total of 28 tens, one chunk at a time. 84 tens minus 20 tens is 64 tens. Now, I take away 4 tens, so I have 60 tens and then 4 more tens, which makes 56 tens.

3. Solve.

$$88 \text{ tens} - 29 \text{ tens} = \underline{59 \text{ tens}}$$

$$84 \text{ tens} - 28 \text{ tens} = \underline{56 \text{ tens}}$$

What is the value of 56 tens? 560

G2-M5-Lesson 5

1. Solve.

When I have a zero in the ones place, I can think of the number as "some tens"!

$$43 \text{ tens} = \underline{430}$$

$$24 \text{ tens} + 19 \text{ tens} = \underline{43} \text{ tens}$$

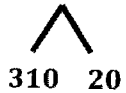
$$25 \text{ tens} + 29 \text{ tens} = \underline{54} \text{ tens}$$

This is similar to $24 + 19$ except I am adding tens instead of ones! 19 is just 1 away from 20, so I add $24 \text{ tens} + 20 \text{ tens} = 44 \text{ tens}$. Then, I subtract 1 ten and get 43 tens.

I can use the same idea as the last problem! $25 \text{ tens} + 30 \text{ tens} = 55 \text{ tens}$. Since there are only 29 tens, I subtract 1 ten and get 54 tens.

2. Add by drawing a number bond to make a hundred. Write the simplified equation and solve.

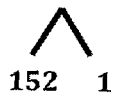
a. $330 + 180$



$$\underline{310 + 200} = \underline{510}$$

I can use a number bond to add when one number is close to the next hundred. 180 is close to 200. I need 20 more. I can get it from the 330. I break apart 330 into 310 and 20. Now my problem is $310 + 200$, which is easier to solve. I can just count on 2 hundreds.

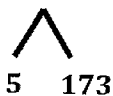
b. $153 + 499$



$$\underline{152 + 500} = \underline{652}$$

499 is only 1 away from 500. I can decompose 153 into 152 and 1. Then, I add the 1 to 499 to get 500. My new addition problem is $152 + 500 = 652$.

c. $695 + 178$



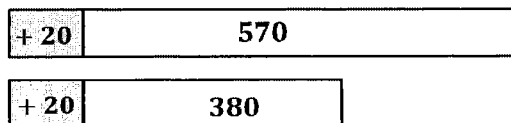
$$\underline{700 + 173} = \underline{873}$$

695 is closer to the next hundred than 178. I break apart 178 into 5 and 173. I give 5 to 695, so $700 + 173 = 873$.

G2-M5-Lesson 6

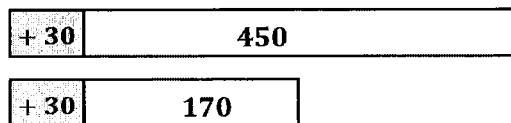
1. Draw and label a tape diagram to show how to simplify the problem. Write the new equation, and then subtract.

a. $570 - 380 = \underline{590 - 400} = \underline{190}$



It's easier to take away hundreds! If I add the same amount, 20, to each number, I have a simpler problem. This is called compensation! Now, I can easily subtract 400 from 590.

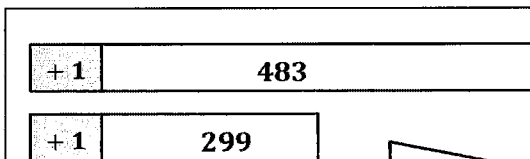
b. $450 - 170 = \underline{480 - 200} = \underline{280}$



I see that 170 is close to 200. I add 30 to each number, so the difference stays the same. My new problem is $480 - 200$.

2. Draw and label a tape diagram to show how to simplify the problem. Write a new equation, and then subtract. Check your work using addition.

a. $483 - 299 = \underline{484 - 300} = \underline{184}$



Check:

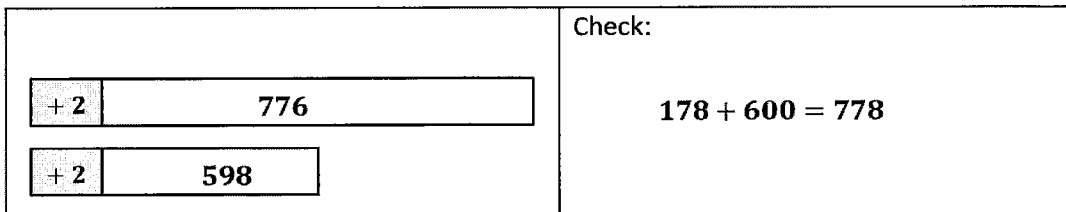
$184 + 300 = 484$

I check my work by adding the 2 parts. The sum should be 484.

I only need to add 1 to each number to make this problem easier! If I add 1 to both numbers, I can subtract only hundreds, instead of hundreds, tens, and ones!

This is much easier than the vertical form because I don't have to rename! I just add 2 to both numbers, and then I can solve in my head!

b. $776 - 598 = \underline{778 - 600} = \underline{178}$



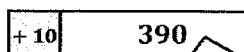
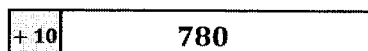
Check:

$178 + 600 = 778$

G2-M5-Lesson 7

1. Solve each problem with a written strategy such as a tape diagram, a number bond, the arrow way, the vertical form, or chips on a place value chart.

$$780 - 390 = \underline{390}$$



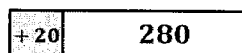
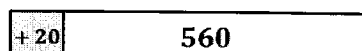
390 is only 10 away from 400. I draw a tape diagram to show how I add 10 to both numbers so the difference stays the same. My new problem is $790 - 400 = 390$.

$$\underline{331} + 600 = 931$$



I use the arrow way to add in chunks. First, I add 3 hundreds to get to 900. Then, I add 31 more to get to 931. $300 + 31 = 331$

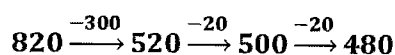
$$\underline{280} = 560 - 280$$



I use compensation and add 20 to both numbers. So, my easier problem is $580 - 300 = 280$. I don't have to unbundle a hundred!

2. Use the arrow way to complete the number sentence.

$$820 - 340 = \underline{480}$$

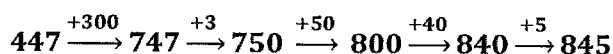


I use the arrow way to subtract hundreds and then tens. When I get to 520, I subtract 20 to get to the hundred and then 20 more to get to 480.

3. Solve $447 + 398$ using two different strategies.

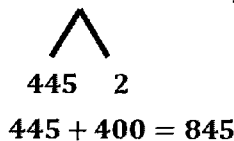
a.

$$447 + 398 = \underline{845}$$



b.

$$447 + 398 = \underline{845}$$



- c. Explain which strategy is easier to use when solving and why.

It is much easier for me to solve with a number bond because 398 is only 2 away from the next hundred. The arrow way takes a long time, and I have to make sure I don't miss any parts of the number 398. The number bond has a lot fewer steps!

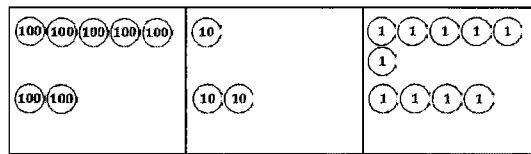
G2-M5-Lesson 8

1. Solve the following problems using your place value chart, place value disks, and vertical form. Bundle a ten or hundred when necessary.

$$516 + 224$$

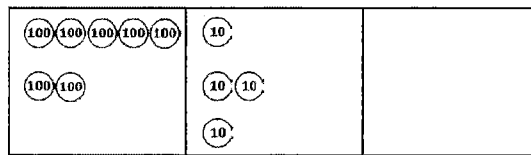
$$\begin{array}{r} 516 \\ + 224 \\ \hline \end{array}$$

I write the problem in vertical form and model both addends with my place value disks.



$$\begin{array}{r} 516 \\ + 224 \\ \hline 10 \end{array}$$

6 ones plus 4 ones is 10 ones, or 1 ten 0 ones. I record this in vertical form on the line below the tens place by first showing the new unit of ten using new groups below. Then, I write 0 below the ones place.



$$\begin{array}{r} 516 \\ + 224 \\ \hline 740 \end{array}$$

Next, I add the tens and then the hundreds. 1 ten plus 2 tens plus 1 more ten is 4 tens. 5 hundreds plus 2 hundreds is 7 hundreds.

$$516 + 224 = 740$$

2. Solve.

a. $600 + 180 = \underline{780}$

Easy! $600 + 100 = 700$. Then I add on 80, so 780.

b. $620 + 180 = \underline{800}$

$$\begin{array}{l} \wedge \\ 600 \quad 20 \end{array}$$

I can break 620 into 600 and 20 to make an easier problem to solve. When I add the 20 to 180 I get 200, and $600 + 200 = 800$, so $620 + 180 = 800$.

c. $680 + 220 = \underline{900}$

$$\begin{array}{l} \wedge \quad \wedge \\ 800 \quad 100 \end{array}$$

$$\begin{array}{l} 600 + 200 = 800 \\ 80 + 20 = 100 \\ 800 + 100 = 900 \end{array}$$

d. $680 + 230 = \underline{910}$

Part (c) helps me solve this one. The first addend, 680, is the same. 230 is just 10 more than 220. That means the answer must be 10 more than 900, or 910.

G2-M5-Lesson 9

1. Solve the following problems using your place value chart, place value disks, and vertical form. Bundle a ten or hundred when necessary.

$$346 + 278$$

I show each step with the place value disks in the vertical form. When I make a new unit, I show it with new groups below.

$$\begin{array}{r} 346 \\ + 278 \\ \hline 144 \end{array}$$

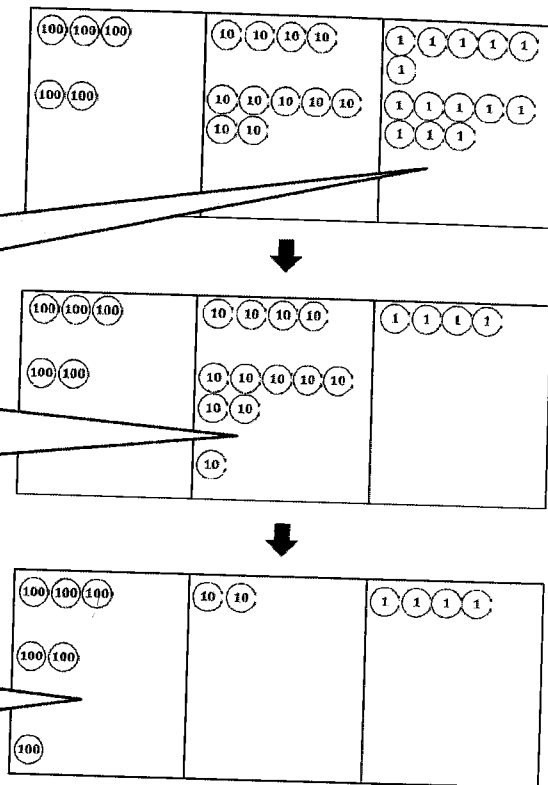
When I add the ones, I have 14 ones, or 1 ten 4 ones. I change 10 ones for 1 ten.

$$\begin{array}{r} 346 \\ + 278 \\ \hline 1144 \end{array}$$

Next, I add 4 tens plus 7 tens plus 1 more ten. That's 12 tens, or 1 hundred 2 tens. I change 10 tens for 1 hundred.

$$\begin{array}{r} 346 \\ + 278 \\ \hline 11144 \\ \hline 624 \end{array}$$

Now I have 6 hundreds 2 tens 4 ones. $346 + 278 = 624$



2. Solve.

a. $478 + 303 = \underline{781}$

$$\begin{array}{r} \wedge \\ 2 \quad 301 \end{array}$$

478 is close to 480; it only needs 2 more. I can take 2 from 303 by breaking 303 into 2 and 301 to make an easier problem. $480 + 301 = 781$, so $478 + 303 = 781$.

b. $478 + 323 = \underline{801}$

Part (a) helps me solve this problem. 323 is just 20 more than 303, so the answer must be 20 more than 781. I count on 2 tens from 781. 781, 791, 801.

G2-M5-Lesson 10

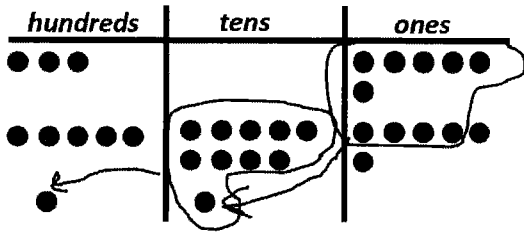
Solve using vertical form, and draw chips on the place value chart. Bundle as needed.

$$306 + 596 = \underline{902}$$

$$\begin{array}{r} 306 \\ + 596 \\ \hline 902 \end{array}$$

I show each step I make with chips vertically using new groups below.

I draw chips to show each addend. I draw 3 chips in the hundreds place, 0 chips in the tens place, and 6 chips in the ones place to represent 306. Since I am adding, I also draw chips to show 596.



The place value chart and the vertical form both show the same thing: there are 9 hundreds 0 tens 2 ones. That's 902.

6 ones plus 6 ones is 12 ones, or 1 ten 2 ones. I bundle 10 ones to make 1 ten. Now I add the tens. 9 tens plus the new ten is 10 tens. I can bundle again! 10 tens makes 1 hundred.

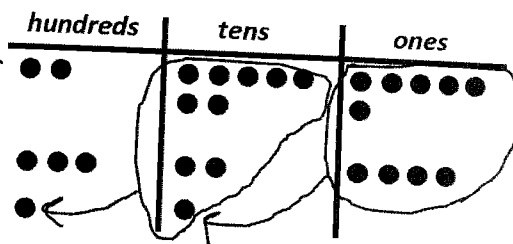
G2-M5-Lesson 11

Solve using vertical form, and draw chips on the place value chart. Bundle as needed.

$$276 + 324 = \underline{600}$$

I draw chips to represent each addend.

$$\begin{array}{r} 276 \\ + 324 \\ \hline 600 \end{array}$$



My chip model matches the vertical form. I bundled twice, and I show the new units with new groups below.

Renaming the tens is just like renaming the ones. I have to look for 10 of a unit to make the next higher value unit. So, 10 ones make 1 ten, and 10 tens make 1 hundred!

G2-M5-Lesson 12

1. Solve $246 + 490$ using two different strategies.

| <p>a. $246 + 490 = 736$</p> <div style="margin-left: 20px;"> $\begin{array}{r} 246 \\ \wedge \\ 236 \quad 10 \end{array}$ </div> <div style="margin-left: 100px; margin-top: 20px;"> $490 + 10 = 500$ $500 + 236 = 736$ </div> | <p>b.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th style="width: 33%;">hundreds</th> <th style="width: 33%;">tens</th> <th style="width: 33%;">ones</th> </tr> <tr> <td>●●</td> <td>●●●●</td> <td>●●●●●●</td> </tr> <tr> <td>●●●●</td> <td>●●●●</td> <td>●</td> </tr> <tr> <td>●</td> <td>●●●●</td> <td></td> </tr> <tr> <td>7</td> <td>3</td> <td>6</td> </tr> </table> | hundreds | tens | ones | ●● | ●●●● | ●●●●●● | ●●●● | ●●●● | ● | ● | ●●●● | | 7 | 3 | 6 |
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| hundreds | tens | ones | | | | | | | | | | | | | | |
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| 7 | 3 | 6 | | | | | | | | | | | | | | |

490 is close to 500; it just needs 10 more, so I make the next hundred by breaking 246 into 236 and 10. This is the easiest strategy because it's easy to add 5 hundreds to 236.

I could also draw a chip model, but that would take longer, so it's not as efficient as using a number bond.

2. Choose the best strategy and solve. Explain why you chose that strategy.

a. $499 + 367 = 866$

$\begin{array}{r} 499 \\ \wedge \\ 1 \quad 366 \end{array}$

The best strategy is to make the next hundred to make an easier problem to solve. 499 needs just 1 more to be 500. Then, it's easy to add what's left, 366. $500 + 366 = 866$, so $499 + 367 = 866$. That's why it's important to always look for relationships between the numbers.

b. $534 + 110 = 644$

I can solve this one mentally by adding like units. $500 + 100 = 600$, and $34 + 10 = 44$, so $600 + 44 = 644$.

c. $695 + 248 = 943$

$\begin{array}{r} 695 \\ \wedge \\ 5 \quad 243 \end{array}$

At first, I thought I needed to use the chip model and vertical form because I can see I need to rename twice. But then I looked more carefully! I see that I can make the next hundred, so I break apart 248. $695 + 5 = 700$, and $700 + 243 = 943$, so $695 + 248 = 943$.

G2-M5-Lesson 13

I can use $180 - 30$ to help me solve $180 - 29$. Since the difference in the first problem is 150, the difference in the second problem must be 1 more than 150 because I am subtracting 1 less.

1. Solve using mental math.

$8 - 3 = \underline{5}$

$80 - 30 = \underline{50}$

$180 - 30 = \underline{150}$

$180 - 29 = \underline{151}$

2. Solve using mental math or vertical form with place value disks. Check your work using addition.

a. $223 - 121 = \underline{102}$

I can use mental math to solve because there's no renaming. I just subtract like units. $200 - 100 = 100$, $20 - 20 = 0$, and $3 - 1 = 2$. $100 + 2 = 102$, so $223 - 121 = 102$. I can check my work by adding: $102 + 121 = 223$.

b. $378 - 119 = \underline{259}$

I can solve this one mentally, too, using compensation. If I add 1 to each number, I make a problem that's easier to solve, $379 - 120$. There's no renaming, so I just subtract like units. The answer is 259.

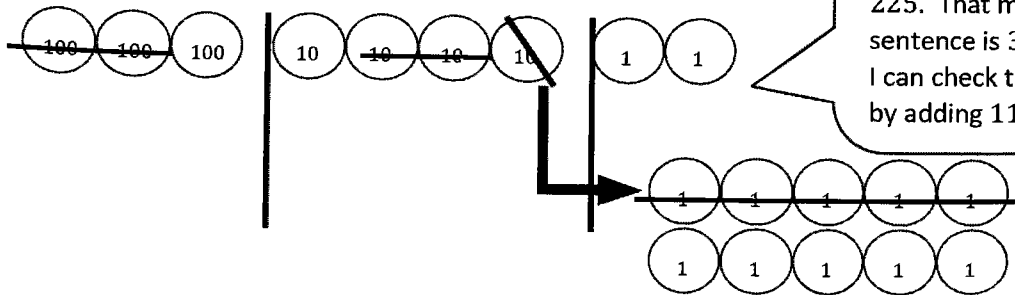
| | |
|----|-----|
| +1 | 378 |
|----|-----|

| | |
|----|-----|
| +1 | 119 |
|----|-----|

I know that part plus part equals whole, so if I'm right, $259 + 119$ must equal 378. When I check my work, I see that I'm right!

$$\begin{array}{r} 259 \\ + 119 \\ \hline 378 \end{array}$$

3. Complete the number sentence modeled by place value disks.



The model shows the whole, 342. 2 hundreds 2 tens 5 ones are crossed off. That's 225. That means the number sentence is $342 - 225 = 117$. I can check to see if I'm right by adding 117 and 225.

$342 - 225 = 117$

$$\begin{array}{r} 117 \\ + 225 \\ \hline 342 \end{array}$$

G2-M5-Lesson 14

1. Solve by drawing place value disks on a chart. Then, use addition to check your work.

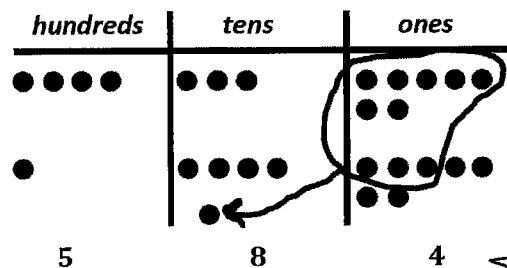
| | | |
|------------------|---|--|
| <p>741 - 448</p> | <p>Solve vertically or mentally:</p> $\begin{array}{r} 6 \quad 13 \quad 11 \\ 7 \quad \cancel{4} \quad \cancel{1} \\ - 4 \quad 4 \quad 8 \\ \hline 2 \quad 9 \quad 3 \end{array}$ | <p>Check:</p> $\begin{array}{r} 2 \quad 9 \quad 3 \\ + 4 \quad 4 \quad 8 \\ \hline 1 \quad 1 \\ 7 \quad 4 \quad 1 \end{array}$ |
|------------------|---|--|

The vertical form shows what I did with the place value disks. I can't subtract 8 ones from 1 one, so I unbundle a ten. Now I have 7 hundreds, 3 tens, 11 ones. I can't subtract 4 tens from 3 tens, so I decompose 1 hundred. Now I have 6 hundreds and 13 tens. I'm ready to subtract!

I can check my work by adding the parts to see if they equal the whole.

2. If $584 - 147 = 437$, then $437 + 147 = 584$. Explain why this statement is true using numbers, pictures, or words.

I can prove that it's true with a chip model. The parts, 437 and 147, are inside the whole, 584.



Here is 437.

Here is 147.

When I add the parts, they equal the whole, 584.

G2-M5-Lesson 15

1. Solve by drawing chips on the place value chart. Then, use addition to check your work.

| | | |
|------------------|--|---|
| <p>721 - 485</p> | <p>Solve vertically or mentally:</p> $\begin{array}{r} 6 \quad 11 \quad 11 \\ \cancel{7} \quad \cancel{2} \quad \cancel{1} \\ - 4 \quad 8 \quad 5 \\ \hline 2 \quad 3 \quad 6 \end{array}$ | <p>Check:</p> $\begin{array}{r} 2 \quad 3 \quad 6 \\ + 4 \quad 8 \quad 5 \\ \hline 1 \quad 1 \\ \hline 7 \quad 2 \quad 1 \end{array}$ |
|------------------|--|---|

The vertical form shows what I did with the chips. I can't subtract 5 ones from 1 one, so I unbundle a ten. Now I have 7 hundreds 1 ten 11 ones. I can't subtract 8 tens from 1 ten, so I decompose 1 hundred. Now I have 6 hundreds and 11 tens. I'm ready to subtract!

I can add the parts to see if they equal the whole. My answer, 236, is correct!

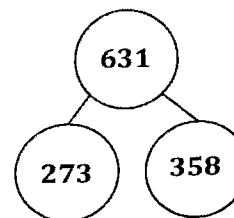
2. Complete the *if...then* statement. Draw a number bond to represent the related facts.

If $631 - 358 = 273$, then $358 + 273 = 631$.

I know that whole - part = part. 631 is the whole because it's the largest number. 273 is the part I know, so I can subtract to find the other part: $631 - 273 = 358$. That also means that $358 + 273 = 631$ because part + part = whole.

$$\begin{array}{r} 5 \quad 12 \quad 11 \\ \cancel{6} \quad \cancel{3} \quad \cancel{1} \\ - 2 \quad 7 \quad 3 \\ \hline 3 \quad 5 \quad 8 \end{array}$$

The number bond shows the part-whole relationship.

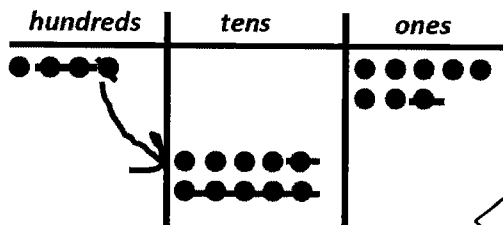


G2-M5-Lesson 16

1. Solve vertically or using mental math. Draw chips on the place value chart and unbundle if needed.

a. $408 - 261 = \underline{147}$

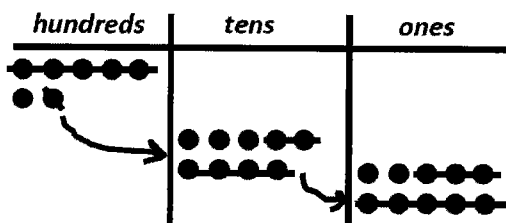
$$\begin{array}{r} 3 \quad 10 \\ 4 \quad 0 \quad 8 \\ - 2 \quad 6 \quad 1 \\ \hline 1 \quad 4 \quad 7 \end{array}$$



The vertical form shows what I did with the chips. I have enough ones to subtract in the ones place, but I need to unbundle 1 hundred to have enough tens in the tens place. Now I'm ready to subtract!

b. $700 - 568 = \underline{132}$

$$\begin{array}{r} 6 \quad 9 \quad 10 \\ 7 \quad 0 \quad 0 \\ - 5 \quad 6 \quad 8 \\ \hline 1 \quad 3 \quad 2 \end{array}$$

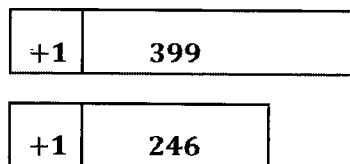


I see that both the tens and the ones are going to need more. I can unbundle a hundred in one step. 1 hundred is equal to 9 tens 10 ones. Now I have 6 hundreds 9 tens 10 ones. I show this with my chips and in the vertical form. Now, I am ready to subtract.

2. Emily said that $400 - 247$ is the same as $399 - 246$. Write an explanation using pictures, numbers, or words to prove Emily is correct.

I can use compensation. I notice that 400 is just 1 more than 399, and 247 is just 1 more than 246. So, the difference for each problem must be the same!

I can explain two different ways!



I can use the arrow way to show that the difference is the same. $400 - 247 = 153$, and $399 - 246 = 153$.

$$400 \xrightarrow{-200} 200 \xrightarrow{-40} 160 \xrightarrow{-7} 153$$

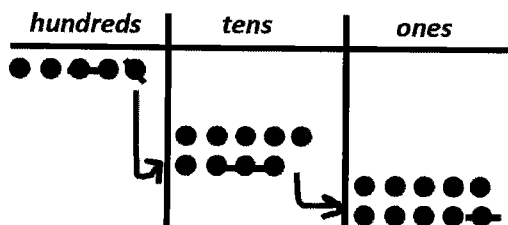
$$399 \xrightarrow{-200} 199 \xrightarrow{-40} 159 \xrightarrow{-6} 153$$

G2-M5-Lesson 17

Solve vertically or using mental math. Draw chips on the place value chart and unbundle if needed.

a. $500 - 231 = \underline{269}$

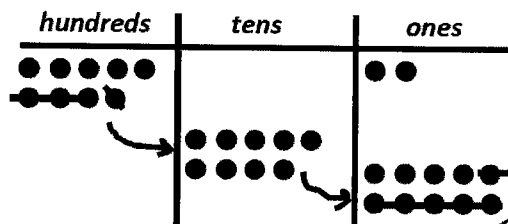
$$\begin{array}{r} 4 \quad 9 \quad 10 \\ \cancel{5} \quad \cancel{0} \quad \cancel{0} \\ - 2 \quad 3 \quad 1 \\ \hline 2 \quad 6 \quad 9 \end{array}$$



I see that both the tens and the ones are going to need more. I can unbundle a hundred in one step. 1 hundred is equal to 9 tens 10 ones. Now I have 4 hundreds 9 tens 10 ones. I show this with my chips and in the vertical form. I am ready to subtract.

b. $902 - 306 = \underline{596}$

$$\begin{array}{r} 8 \quad 9 \quad 12 \\ \cancel{9} \quad \cancel{0} \quad \cancel{2} \\ - 3 \quad 0 \quad 6 \\ \hline 5 \quad 9 \quad 6 \end{array}$$

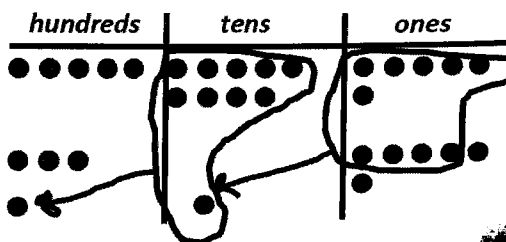


I change 1 hundred for 9 tens 10 ones. Now I have 8 hundreds 9 tens 12 ones. I show my work with the chips and in the vertical form. I am ready to subtract.

I can check my work using addition.

$$596 + 306 = 902$$

$$\begin{array}{r} 5 \quad 9 \quad 6 \\ + 3 \quad 0 \quad 6 \\ \hline 9 \quad 0 \quad 2 \end{array}$$



G2-M5-Lesson 18

1. Use the arrow way and counting on to solve.

$$300 - 164 = 136 \quad 164 \xrightarrow{+6} 170 \xrightarrow{+30} 200 \xrightarrow{+100} 300$$

The arrow way is efficient. I add ones, tens, and hundreds to get to benchmark, or friendly, numbers. That makes counting on easy!

I added $6 + 30 + 100$. That equals 136. So $300 - 164 = 136$.

2. Choose a strategy to solve, and explain why you chose that strategy.

$$500 - 280 = 220$$

| | |
|-----|-----|
| +20 | 500 |
| +20 | 280 |

Compensation works best for this problem because I notice 280 is close to 300. It's easy to subtract 300, so I add 20 to each number. That makes a problem that's easier to solve, $520 - 300 = 220$. So $500 - 280 = 220$.

3. Explain why $400 - 173$ is the same as $399 - 172$.

| | |
|----|-----|
| -1 | 400 |
| -1 | 173 |

I can explain by using compensation like I did for Problem 2, except this time I'll subtract. When I subtract 1 from each number in $400 - 173$, I see that the expression becomes $399 - 172$!

$$400 - 173 = 399 - 172$$

G2-M5-Lesson 19

Solve and explain why you chose that strategy.

a. $580 + 230 = \underline{810}$
 \wedge

I notice I can make the next hundred because 580 is close to 600. I break apart 230 into 20 and 210. 600 more than 210 is easy, 810.

b. $310 + \underline{333} = 643$

$643 - 310 = 333$

To find a missing addend, I can subtract. If I subtract one part from the whole, the answer is the missing part. I rewrite the problem as $643 - 310$. There's no renaming so I just subtract like units, hundreds from hundreds, tens from tens, and ones from ones.

c. $900 - 327 = \underline{573}$

$327 \xrightarrow{+3} 330 \xrightarrow{+70} 400 \xrightarrow{+500} 900$

The arrow way is easy because I just need to reach a benchmark number, and then I can skip-count quickly. $327 + 3$ gets me to 330. 330 needs 70 to get to 400. Now I just add 500 to reach 900. Altogether, I added 573, so $900 - 327 = 573$.

d. $802 - 698 = \underline{104}$

| | |
|----|-----|
| +2 | 802 |
| +2 | 698 |

I can use compensation. I notice that 698 is very close to 700, which is an easy number to subtract. I add 2 to 698 to get 700. What I do to one number I must do to the other number, so I add 2 to 802. Now I have an easier problem to solve, $804 - 700$. Easy! The answer is 104.

G2-M5-Lesson 20

1. Solve each problem using two different strategies.

$$295 + \underline{239} = 534$$

| | | | | | | | | | | | | | |
|---|--|--------------|----|----|--------------|--------------|--------------|-------|--|--|---|---|---|
| <p>a. First Strategy</p> $295 \xrightarrow{+5} 300 \xrightarrow{+200} 500 \xrightarrow{+34} 534$ <div style="border: 1px solid black; border-radius: 15px; padding: 10px; margin-top: 20px; width: fit-content;"> <p>I can solve by counting on. I use the arrow way to show what I add to 295 to reach 534.</p> $200 + 34 + 5 = 239$ </div> | <p>b. Second Strategy</p> <div style="display: flex; align-items: center;"> <table style="margin-right: 20px;"> <tr><td>4</td><td>12</td><td>14</td></tr> <tr><td>5</td><td>7</td><td>4</td></tr> <tr><td colspan="3"><hr/></td></tr> <tr><td>2</td><td>3</td><td>9</td></tr> </table> <div style="text-align: center;"> <p><i>hundreds</i> <i>tens</i> <i>ones</i></p> </div> </div> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; margin-top: 20px; width: fit-content;"> <p>I can also solve by using a chip model, and I show my work in vertical form.</p> </div> | 4 | 12 | 14 | 5 | 7 | 4 | <hr/> | | | 2 | 3 | 9 |
| 4 | 12 | 14 | | | | | | | | | | | |
| 5 | 7 | 4 | | | | | | | | | | | |
| <hr/> | | | | | | | | | | | | | |
| 2 | 3 | 9 | | | | | | | | | | | |

2. Circle a strategy to solve and explain why you chose that strategy.

$$843 - 698 = \underline{145}$$

Number bond or arrow way

$$698 \xrightarrow{+2} 700 \xrightarrow{+100} 800 \xrightarrow{+43} 843$$

I chose the arrow way because I see that 698 is close to 700. I just add 2. From there, I can add 100 to reach 800. Then I just add 43 more to reach 843. $100 + 43 + 2 = 145$

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