Name _____ Date _____

Step-by-Step 1

Lesson 1, Question 7

Step 1 Use the digits 1 to 9. Use each digit only once.
Arrange the digits to make a 6-digit number as close to 100 000 as possible.

Step 2 Use the digits 1 to 9. Use each digit only once.
Arrange the digits to make a 6-digit number as close to 500 000 as possible.

Step 3 Find the difference between the number in *Step 1* and 100 000.

_____

Step 4 Can you write a number that is close to 100 000? If so, repeat *Step 1*.

Step 5 Find the difference between the number in *Step 2* and 500 000.

_____

Step 6 Can you write a number that is close to 500 000? If so, repeat *Step 2*.

Step 7 Did you get closer to 100 000 or to 500 000? _____
How do you know?

_____

_____

Master 2.14   **Step-by-Step 2**

Lesson 2, Question 4

Step 1   Begin with 1000. Add 498. _____

Step 2   Subtract 202 from your answer from *Step 1*. _____

Step 3   Add 204 to your answer from *Step 2*. _____

Step 4   Compare your answer from *Step 3* to the number you started with.
What is the difference between the numbers?

_____

Step 5   If you subtract 500 from the number in *Step 3*, what will you get?

_____

Step 6   How does this compare with the original number you started out with?

_____

Step 7   Find 498 – 202 + 204. _____

Step 8   Repeat *Steps 1* through *3* again, but with a different starting number.
If you subtract 500 from the number you are told in *Step 3*, will you
always get the original number?

_____

Step 9   Explain why the number trick works.

_____

_____

(**Master 2.15**) **Step-by-Step 3**

Lesson 3, Question 6

> Regional Recycling has a target of 2450 kg of aluminum.
> Suppose Fairfield delivers 1665 kg of aluminum,
> and Westdale delivers 795 kg of aluminum.

Step 1 Find the sum 1665 + 795. _____

Step 2 Compare the sum from *Step 1* with the target of 2450.

_____

Step 3 Will Regional Recycling meet its goal? How do you know?

_____

_____

(Master 2.16)   **Step-by-Step 4**

Lesson 4, Question 5

_____

Find the missing digits:

    3 6 ☐ 5
    ☐ 9 7 4
 + 1 1 5 ☐
    7 ☐ 1 5

Step 1 Look at the digits in the ones column.

5 + 4 + ☐ = ___ 5

What is the least number you could add to 5 + 4 that gives a sum with a 5 in

the ones position? _____

Write the tens digit on top of the tens column.

Step 2 Look at the digits in the tens column.

1 + ☐ + 7 + 5 = ___ 1

What is the least number you could add to the numbers in the tens column

that gives a sum with a 1 in the tens position? _____
Write the hundreds digit on top of the hundreds column.

Step 3 Find the sum of the hundreds digits.
Write the thousands digit on top of the thousands column.

Step 4 Look at the digits in the thousands column.

1 + 3 + ☐ + 1 = 7

What is the least number you could add to the numbers in the thousands

column that gives a sum with a 7 in the thousands position? _____

(**Master 2.17**)   **Step-by-Step 5**

Lesson 5, Question 6

Step 1   Write two 3- or 4-digit numbers you can subtract using mental math.

_____ – _____ = _____

Step 2   Write a story problem using the numbers from *Step 1*.
Make sure it is a subtraction problem.

_____

_____

_____

_____

Step 3   Solve the problem.

_____

_____

_____

_____

Step 4   What strategy did you use? Why?

_____

_____

_____

_____
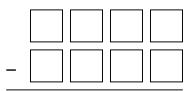
(Master 2.18)   **Step-by-Step 6**

Lesson 6, Question 5

Use the digits 1 to 9. Use each digit once.

Step 1   What is the greatest 4-digit number you can make? ___ ___ ___ ___

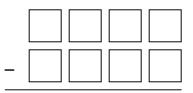What is the least 4-digit number you can make? ___ ___ ___ ___

Step 2   Write the numbers from *Step 1* below.
What is the difference between the greatest and the least 4-digit numbers?

□ □ □ □
– □ □ □ □
‾‾‾‾‾‾‾‾‾‾‾

Step 3   Write another 4-digit number. ___ ___ ___ ___

Step 4   Write a different 4-digit number that is as close as possible to the number in *Step 3*. ___ ___ ___ ___

Step 5   Write the numbers from *Steps 3* and *4* in the boxes below.
What is their difference?

□ □ □ □
– □ □ □ □
‾‾‾‾‾‾‾‾‾‾‾

Step 6   Can you find 2 numbers with a difference that is less than your answer in *Step 5*? If so, find the numbers.

□ □ □ □
– □ □ □ □
‾‾‾‾‾‾‾‾‾‾‾

Step 7   How did you decide where to place the digits?

_____

_____

(**Master 2.19**) **Step-by-Step 7**

Lesson 7, Question 8

You will need counters.

Step 1   Make an array to show 1×12.
Record the array.
Circle 2 groups of 6 counters
to show 1×6 two times.

Step 2   Make an array to show 2×12.
Record the array.
Circle 2 groups of 12 counters
to show 2×6 two times.

Step 3   Make an array to show 3×12.
Record the array.
Circle 3 groups of 12 counters
to show 2×6 three times.

Step 4   Kayla finds the multiplication facts for 12 by doubling the multiplication
facts for 6.
Does Kayla's strategy work?
How do you know?

_____

_____

_____

_____

(Master 2.20)   **Step-by-Step 8**

Lesson 8, Question 5

Step 1   How many seconds are in 1 minute? _____

Step 2   A ruby-throated hummingbird flaps its wings about 60 times each second. How many times would it flap its wings in 1 minute?

_____

Step 3   How many minutes are in 1 hour? _____

Step 4   How many times does the hummingbird flap its wings in 1 hour?

_____

(**Master 2.21**)   **Step-by-Step 9**

Lesson 9, Question 4

Step 1   Use mental math. Find the product 16×100. _____

Step 2   What is the difference between 100 and 99? _____

Step 3   How can you use your answer from *Step 1* to find the product 16×99?

_____

Use this result to find the product 16×99.

_____

Step 4   Find each product.

$10 \times 99 =$ _____

$6 \times 99 =$ _____

Step 5   How can you use the products from *Step 4* to find the product 16×99?

_____

_____

Use these products to find the product 16×99.

_____

Step 6   Describe the 2 strategies you used to find the product 16×99.

_____

_____

_____

_____

_____

_____

(**Master 2.22**) **Step-by-Step 10**

Lesson 10, Question 7

Step 1   Draw an array to show 45 × 23.

Step 2   Draw a line to break the array from *Step 1* into 2 smaller arrays.
The 2 smaller arrays should represent products that are easy
to find.
Write down 2 products from *Step 2*.
_____ × _____ = _____ and _____ × _____ = _____

How did you decide where to draw the line?

_____

_____

Step 3   Use your results from *Step 2*.
Find the product 45 × 23.

_____

(Master 2.23) **Step-by-Step 11**

Lesson 11, Question 6

Step 1 Find each quotient.

$32 \div 4 =$ _____ $36 \div 4 =$ _____

$3200 \div 4 =$ _____ $3600 \div 4 =$ _____

Step 2 Use the quotients from *Step 1* to help you estimate the quotient $3495 \div 4$.

_____

_____

Step 3 When Tyler estimated $3495 \div 4$, he wrote these statements:
• The quotient is between 800 and 900.
• The quotient is greater than 850.
Look at the second set of quotients you found in *Step 1*.
Explain how Tyler might have made his estimates.

_____

_____

_____

_____

(**Master 2.24**) **Step-by-Step 12**

Lesson 12, Question 8

Use the digits 8, 6, 1, and 4. Use each digit once.

Step 1 Write all the 4-digit numbers you can make with 8 in the thousands place.

_____

Step 2 Divide each number from *Step 1* by 7.
List all the numbers that are divisible by 7 with no remainder.

_____

Step 3 Repeat *Step 1*. This time write all the 4-digit numbers you can make with each remaining digit in the thousands place: 6, then 4, then 1.

_____

_____

_____

Step 4 Divide each number from *Step 3* by 7.
List all the numbers that are divisible by 7 with no remainder.

_____

_____

_____

Step 5 How do you know you have found all the 4-digit numbers made from the digits 8, 6,1, 4 that are divisible by 7 with no remainder?

_____

_____

_____

(**Master 2.25**) **Step-by-Step 13**

Lesson 13, Question 4

Step 1 How many seconds are in 1 minute? _____

Step 2 A cheetah runs 29 m every second.
How far does the cheetah run in 1 minute?

_____ × _____ = _____

Step 3 Connor runs 150 m in 1 minute.
How much farther than Connor will the cheetah run in 1 minute?

_____ – _____ = _____

How did you find out?

_____