Name _____   Date _____

Solve the following problems. Use the RDW process.

1.   There are 19 identical socks. How many pairs of socks are there? Will there be any socks without a match? If so, how many?
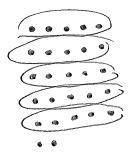
9 pairs with 1 sock left without a match.

The quotient is 9 and the remainder is 1.

2.   If it takes 8 inches of ribbon to make a bow, how many bows can be made from 3 feet of ribbon (1 foot = 12 inches)? Will any ribbon be left over? If so, how much?

3 feet = 36 inches

4 bows can be made with 4 inches left over.
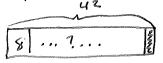
The quotient is 4 and the remainder is 4.

3.   The library has 27 chairs and 5 tables. If the same number of chairs is placed at each table, how many chairs can be placed at each table? Will there be any extra chairs? If so, how many?

5 chairs can be placed at every table. Two chairs are extra.

The quotient is 5 and the remainder is 2.

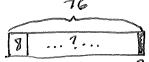4. The baker has 42 kilograms of flour. She uses 8 kilograms each day. After how many days will she need to buy more flour?

$8, 16, 24, 32, \underline{40}, 48$

remainder of 2

$42 \div 8$

The quotient is 5 and the remainder is 2.

She will need to buy flour after 5 days.

5. Caleb has 76 apples. He wants to bake as many pies as he can. If it takes 8 apples to make each pie, how many apples will he use? How many apples will not be used?

$76 \div 8$

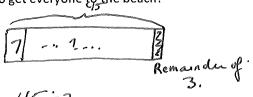$8, 16, 24, 32, 40, 48, 56, \underline{72}, 80$

Remainder of 4

The quotient is 9 and the remainder is 4.

Caleb will use 72 apples. 4 apples will not be used.

✱ Note that this problem asks students for the apples used not the # of pies made.

6. Forty-five people are going to the beach. Seven people can ride in each van. How many vans will be required to get everyone to the beach?

$7, 14, 21, 28, \underline{35}, 42, 49$

Remainder of 3.

$45 \div 7$

The quotient is 6 and the remainder is 3.

7 vans will be needed to get everyone to the beach.

✱ Note this asks them to interpret the remainder.

Name _____   Date _____

Solve the following problem. Use the RDW process.

1. Fifty-three students are going on a field trip to the zoo. Before the trip, a teacher forms groups of
    students and assigns a chaperone to each group. As much as she can, the teacher divides the students
    into groups of 6. How many groups of students will there be? Will each group have 6 students? How
    many total chaperones are needed?

There will be 9 groups of
students.
No, 8 groups will have 6
students and 1 group will
have 5 students.
The teacher will need 9
chaperones.

The quotient is 8 and the remainder
is 5.
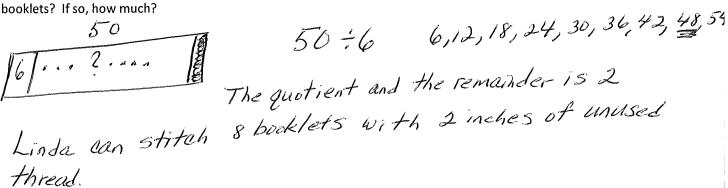
Option: Use this problem with 23 students
instead of 53.

Name _____   Date _____

Solve the following problems. Use the RDW process.

1. Linda makes booklets using 2 sheets of paper. She has 17 sheets of paper. How many of these booklets
    can she make? Will she have any extra paper? How many sheets?

Linda can make 8 booklets
She will have 1 extra sheet of paper.

The quotient is 8 and the remainder is 1

2. Linda uses thread to sew the booklets together. She cuts 6 inches of thread for each booklet. How many
    booklets can she stitch with 50 inches of thread? Will she have any unused thread after stitching up the
    booklets? If so, how much?

$50 \div 6$ 6, 12, 18, 24, 30, 36, 42, 48, 54

The quotient and the remainder is 2

8 booklets with 2 inches of unused

Linda can stitch thread.

3. Ms. Rochelle wants to put her 29 students into groups of 6. How many groups of 6 can she make? If she
    puts any remaining students in a smaller group, how many students will be in that group?

COMMON CORE | Lesson 14: Solve division word problems with remainders.
Date: 8/28/13

engage^ny   3.E.15

4. A trainer gives his horse, Caballo, 7 gallons of water every day from a 57-gallon container. How many days will Caballo receive his full portion of water from the container? On which number day will the trainer need to refill the container of water?

5. Meliza has 43 toy soldiers. She lines them up in rows of 5 to fight imaginary zombies. How many of these rows can she make? After making as many rows of 5 as she can, she puts the remaining soldiers in the last row. How many soldiers are in that row?

6. Seventy-eight students are separated into groups of 8 for a field trip. How many groups are there? The remaining students form a smaller group of how many students?

Name _Tommy Timberlake_   Date _____

Show division using an array.	Show division using an area model.

1. $18 \div 6$

Quotient = _3_

Remainder = _0_
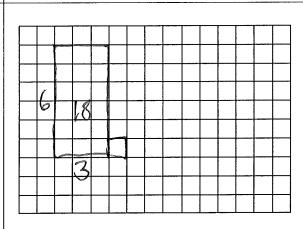
Can you show $18 \div 6$ with one rectangle? _yes_

2. $19 \div 6$

Quotient = _3_

Remainder = _1_

Can you show $19 \div 6$ with one rectangle? _No_
Explain how you showed the remainder:

COMMON CORE   Lesson 15:   Understand and solve division problems with a remainder using the   engage^{ny}   3.E.22
                     Date: array and area models.
                                 8/28/13

© 2013 Common Core, Inc. Some rights reserved. commoncore.org   (cc) BY-NC-SA   This work is licensed under a
                                                                        Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

Tommy Timberlake
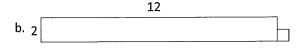
Solve using an array and an area model. The first one is done for you.

Example: $25 \div 2$

a.

b. 2

12
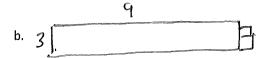
Quotient = 12   Remainder = 1

3. $29 \div 3$

a.

Quotient = 9   Remainder = 2

b. 3

9

4. $22 \div 5$

a.

Quotient = 4   Remainder = 2

b. 4

5

5. $43 \div 4$

a.

Quotient = 10   Remainder = 3
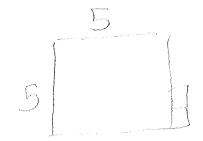
b. 4

10

6. $59 \div 7$

a.

Quotient = 8   Remainder 3

b. 7

8

COMMON CORE   Lesson 15:   Understand and solve division problems with a remainder using the array and area models.   engage^ny   3.E.23

Date: 8/28/13

Name ___Tommy Timberlake___ Date _____

Solve using an array and area model.

1. 27 ÷ 5

    a.

    b.

    Quotient = 5
    Remainder = 2

2. 32 ÷ 6

    a.
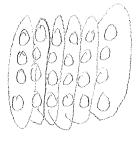
    b.

    Quotient = 5
    Remainder = 2

| **COMMON CORE** | Lesson 15: | Understand and solve division problems with a remainder using the array and area models. | engage^ny | 3.E.24 |
| | Date: | 8/28/13 | | |

© 2013 Common Core, Inc. Some rights reserved. commoncore.org

(cc) BY-NC-SA This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

Name _Tommy Timberlake_　　　　　　Date _____

Show division using an array.	Show division using an area model.

1.　$24 \div 4$

Quotient = _6_
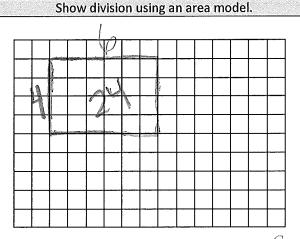
Remainder = _0_
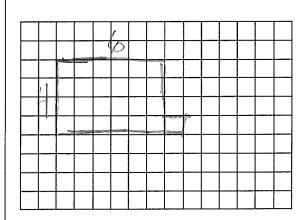
Can you show $24 \div 4$ with one rectangle? _yes_

2.　$25 \div 4$

Quotient = _6_

Remainder = _1_

Can you show $25 \div 4$ with one rectangle? _NO_

Explain how you showed the remainder:

Lesson 15:　Understand and solve division problems with a remainder using the array and area models.

Date:　8/28/13

engageny　　3.E.25

Tommy Timberlake

Solve using an array and area model. The first one is done for you.

Example: 25 ÷ 3

a.

8

b.

3

Quotient = 8   Remainder = 1

3. 44 ÷ 7

a.

Quotient = 6
Remainder = 2

b.

6

7

4. 34 ÷ 6

a.

Quotient = 5
Remainder = 4

b.

5

6

5. 37 ÷ 6

a.

Quotient = 6
Remainder = 1

b.

6

6

6. 46 ÷ 8

a.

Quotient = 6
Remainder = 0

b.

6

8

Name _____   Date _____

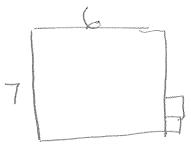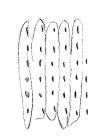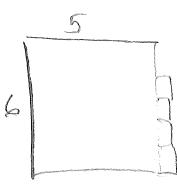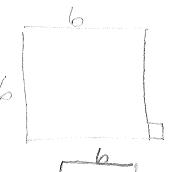Show the division using disks. Relate your work on the place value chart to long division. Check your quotient and remainder by using multiplication and addition.

1. $7 \div 2$

Ones
✗ ✗ ✗ ✗ ✗ ✗ ⊙
⊙ ⊙ ⊙
⊙ ⊙ ⊙

$$\begin{array}{r} 3 \\ 2\overline{\smash{)}7} \\ -6 \\ \hline 1 \end{array}$$

quotient = ___3___

remainder = ___1___

Check Your Work

$$\begin{array}{r} 3 \\ \times\ 2 \\ \hline 6 \end{array}$$

$6 + 1 = 7$ ✓

2. $27 \div 2$

Tens	Ones
✗ ✗	⊙ ⊙ ⊙ ⊙ ⊙ ⊙ ⊙
⊙	⊙ ⊙ ⊙
⊙	⊙ ⊙ ⊙

$$\begin{array}{r} 13 \\ 2\overline{\smash{)}27} \\ -2 \\ \hline 07 \\ -6 \\ \hline 1 \end{array}$$

quotient = ___13___

remainder = ___1___

Check Your Work

$$\begin{array}{r} 13 \\ \times\ 2 \\ \hline 26 \end{array}$$

$26 + 1 = 27$ ✓

3. $8 \div 3$

Ones
⊙ ⊙ ⊙ ⊙ ⊙ ⊙ ⊙ ⊙
⊙ ⊙
⊙ ⊙
⊙ ⊙

$$\begin{array}{r} 2 \\ 3\overline{\smash{)}8} \\ -6 \\ \hline 2 \end{array}$$

quotient = ___2___

remainder = ___2___

Check Your Work

$$\begin{array}{r} 2 \\ \times\ 3 \\ \hline 6 \end{array} \qquad \begin{array}{r} 6 \\ +\ 2 \\ \hline 8 \end{array}$$ ✓

4. 38 ÷ 3

Tens	Ones
● ● ●	●●●●● ●●
O	O O
O	O O
O	O O

$$3\overline{)38}$$
$$\underline{-3}$$
$$08$$
$$\underline{-6}$$
$$2$$

quotient = __12__

remainder = __2__

Check Your Work

$$\begin{array}{r} 12 \\ \times 3 \\ \hline 36 \end{array} \qquad \begin{array}{r} 36 \\ +2 \\ \hline 38 \end{array} ✓$$

5. 6 ÷ 4

Ones
●●●● ● ●
O
O
O
O

$$4\overline{)6}$$
$$\underline{-4}$$
$$2$$

quotient = __1__

remainder = __2__

Check Your Work

$$\begin{array}{r} 1 \\ \times 4 \\ \hline 4 \end{array}$$

$$4+2 = 6 ✓$$

6. 86 ÷ 4

Tens	Ones
●●●●● ●●●●●	●●●● ●
	●
●O O	O
O O	O
● O	●
O O	O

$$4\overline{)86}$$
$$\underline{-8}$$
$$06$$
$$\underline{-4}$$
$$2$$

quotient = __21__

remainder = __2__

Check Your Work

$$\begin{array}{r} 21 \\ \times 4 \\ \hline 84 \end{array} \qquad \begin{array}{r} 84 \\ +2 \\ \hline 86 \end{array} ✓$$

COMMON CORE | Lesson 16:   Understand and solve two-digit dividend division problems with a
              Date: remainder in the ones place by using number disks.
                           8/28/13

engage^ny   3.E.35

Name _____   Date _____

Show the division using disks. Relate your work on the place value chart to long division. Check your quotient and remainder by using multiplication and addition.
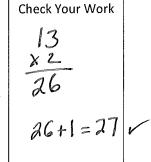
1. $5 \div 3$

Ones
⊘ ⊘ ⊘ ⊘ ⊘
⊘
⊘
⊘

say 1, one

$$3 \overline{)5}$$
$$-3$$
$$2$$

quotient = ___1___

remainder = ___2___

Check Your Work

$$\begin{array}{r} 1 \\ \times 3 \\ \hline 3 \end{array}$$
$3 + 2 = 5$ ✓

2. $65 \div 3$

Tens	Ones
⊘ ⊘ ⊘ ⊘ ⊘ ⊘	⊘ ⊘ ⊘ ⊘ ⊘
⊘ ⊘	—
⊘ ⊘	—
⊘ ⊘	—

$$3 \overline{)65}$$
$$21$$
$$-6$$
$$05$$
$$-3$$
$$2$$

quotient = ___21___

remainder = ___2___

Check Your Work

$$\begin{array}{r} 21 \\ \times 3 \\ \hline 63 \\ + 2 \\ \hline 65 \end{array}$$ ✓

COMMON CORE | Lesson 16:   Understand and solve two-digit dividend division problems with a
                              remainder in the ones place by using number disks.
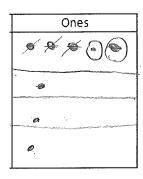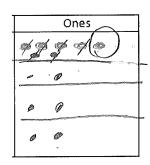 | Date: 8/28/13   engageny   3.E.36

Name _____   Date _____

Show the division using disks. Relate your work on the place value chart to long division. Check your quotient and remainder by using multiplication and addition.
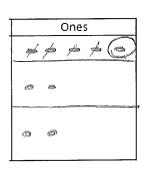
1. $7 \div 3$

$$\begin{array}{r} 2 \\ 3\overline{\smash{)}7} \\ -6 \\ \hline 1 \end{array}$$

quotient = ___2___

remainder = ___1___

Check Your Work

$$\begin{array}{r} 2 \\ \times\ 3 \\ \hline 6 \\ +\ 1 \\ \hline 7 \end{array}$$

2. $67 \div 3$

$$\begin{array}{r} 22 \\ 3\overline{\smash{)}67} \\ 6 \\ \hline 07 \\ 6 \\ \hline 1 \end{array}$$

quotient = ___22___

remainder = ___1___

Check Your Work

$$\begin{array}{r} 22 \\ \times\ 3 \\ \hline 66 \\ +\ 1 \\ \hline 67\ \checkmark \end{array}$$

3. $5 \div 2$

$$\begin{array}{r} 2 \\ 2\overline{\smash{)}5} \\ -4 \\ \hline 1 \end{array}$$

quotient = ___2___

remainder = ___1___

Check Your Work

$$\begin{array}{r} 2 \\ \times\ 2 \\ \hline 4 \\ +\ 1 \\ \hline 5 \end{array}\ \checkmark$$

COMMON CORE | Lesson 16: Understand and solve two-digit dividend division problems with a remainder in the ones place by using number disks.   engage^ny   3.E.37

Date: 8/28/13

4. $85 \div 2$

Tens	Ones

$$2 \overline{)85}$$

quotient = ___42___

remainder = ___1___

Check Your Work

$$\begin{array}{r} 42 \\ \times\ 2 \\ \hline 84 \\ +\ 1 \\ \hline 85 \end{array}$$ ✓

5. $5 \div 4$

Ones

$$4 \overline{)5}$$

quotient = ___1___

remainder = ___1___

Check Your Work

$$\begin{array}{r} 1 \\ \times\ 4 \\ \hline 4 \\ +\ 1 \\ \hline 5 \end{array}$$

6. $85 \div 4$

Tens	Ones

$$4 \overline{)85}$$

quotient = ___21___

remainder = ___1___

Check Your Work

$$\begin{array}{r} 21 \\ 4 \\ \hline 84 \\ +\ 1 \\ \hline 85 \end{array}$$

COMMON CORE | **Lesson 16:** Understand and solve two-digit dividend division problems with a remainder in the ones place by using number disks.
Date: 8/28/13

engage^ny   3.E.38

Name _____   Date _____

Show the division using disks. Relate your model to long division. Check your quotient and remainder by using multiplication and addition.

1. 5 ÷ 2

Ones
⬤ ⬤ ⬤ ⬤ ⬤
⬤ ⬤
⬤ ⬤

$$\begin{array}{r} 2 \\ 2\overline{)5} \\ -4 \\ \hline 1 \end{array}$$

quotient = __2__

remainder = __1__

Check Your Work

$$\begin{array}{r} 2 \\ \times\ 2 \\ \hline 4 \end{array}$$

$$4+1=5 \checkmark$$

2. 50 ÷ 2

Tens	Ones
⬤ ⬤ ⬤ ⬤ ⬤→	→ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤
⬤ ⬤	⬤ ⬤ ⬤ ⬤ ⬤
⬤ ⬤	⬤ ⬤ ⬤ ⬤ ⬤

$$\begin{array}{r} 25 \\ 2\overline{)50} \\ -4 \\ \hline 10 \\ -10 \\ \hline 0 \end{array}$$

quotient = __25__

remainder = __0__

Check Your Work

$$\begin{array}{r} 25 \\ \times\ 2 \\ \hline 50 \end{array} \checkmark$$

3. 7 ÷ 3

Ones
⬤ ⬤ ⬤ ⬤ ⬤ ⬤ ⬤
⬤ ⬤
⬤ ⬤
⬤ ⬤

$$\begin{array}{r} 2\ R1 \\ 3\overline{)7} \\ -6 \\ \hline 1 \end{array}$$

quotient = __2__

remainder = __1__

Check Your Work

$$\begin{array}{r} 2 \\ \times\ 3 \\ \hline 6 \end{array} \qquad \begin{array}{r} 6 \\ +1 \\ \hline 7 \end{array}$$

COMMON CORE

Lesson 17:   Represent and solve division problems requiring decomposing a remainder in the tens.
Date: 8/28/13

engage^ny   3.E.46

4. 75 ÷ 3

Tens	Ones

$$3\overline{)75}$$

quotient = 25

remainder = 0

Check Your Work

25
× 3
75

5. 9 ÷ 4

Ones

$$4\overline{)9}$$

quotient = 2

remainder = 1

Check Your Work

2   8
× 4   + 1
8   9

6. 92 ÷ 4

Tens	Ones

$$4\overline{)92}$$

quotient = 23

remainder = 0

Check Your Work

23
× 4
92

COMMON CORE | Lesson 17: | Represent and solve division problems requiring decomposing a remainder in the tens.
Date: | 8/28/13

engage^{ny}   3.E.47

Name _____   Date _____

Show the division using disks. Relate your model to long division. Check your quotient by using multiplication and addition.

1. 5 ÷ 4

quotient = ___1___

remainder = ___1___

Check Your Work

$\begin{array}{r} 4 \\ \times 1 \\ \hline 4 \end{array}$ $\begin{array}{r} 4 \\ +1 \\ \hline 5 \end{array}$

2. 56 ÷ 4

quotient = ___14___
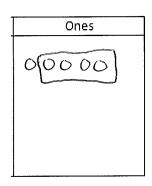
remainder = ___0___

Check Your Work

$\begin{array}{r} 14 \\ \times 4 \\ \hline 56 \end{array}$

COMMON CORE | Lesson 17: Represent and solve division problems requiring decomposing a remainder in the tens.
Date: 8/28/13

engage^ny   3.E.48

4. 62 ÷ 4

Tens	Ones
0	0 0 0 0
0	0 0 0 0
0	0 0 0 0
0	0 0 0 0

$$15\ R2$$
$$4\overline{)62}$$
$$\underline{-41}$$
$$22$$
$$\underline{-20}$$
$$2$$

quotient = 15

remainder = 2

Check Your Work

$$\begin{array}{r} \overset{2}{15} \\ \times\ 4 \\ \hline 60 \end{array} \quad \begin{array}{r} 60 \\ +\ 2 \\ \hline 62 \end{array}$$

5. 8 ÷ 3

Ones
0 0
0 0
0 0

$$2\ R2$$
$$3\overline{)8}$$
$$\underline{-6}$$
$$2$$

quotient = 2

remainder = 2

Check Your Work

$$\begin{array}{r} 3 \\ \times\ 2 \\ \hline 6 \end{array} \quad \begin{array}{r} 6 \\ +\ 2 \\ \hline 8 \end{array}$$

6. 84 ÷ 3

Tens	Ones
0 0	0 0 0 0 0 0 0
0 0	0 0 0 0 0 0 0
0 0	0 0 0 0 0 0 0

$$28$$
$$3\overline{)84}$$
$$\underline{-6}$$
$$24$$
$$\underline{-24}$$
$$0$$

quotient = 28

remainder = 0

Check Your Work

$$\begin{array}{r} 28 \\ \times\ 3 \\ \hline 84 \end{array}$$

COMMON CORE | Lesson 17:   Represent and solve division problems requiring decomposing a
              | remainder in the tens.
              | Date: 8/28/13

engage^ny   3.E.50

© 2013 Common Core, Inc. Some rights reserved. commoncore.org

This work is licensed under a
Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

Name _____   Date _____

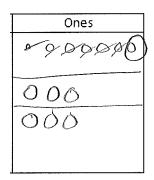Show the division using disks. Relate your model to long division. Check your quotient and remainder by using multiplication and addition.

1. 7 ÷ 2

Ones
9 9 9 9 9 9
O O O
O O O

$$2\overline{\smash{)}7}^{3\,r\,1}$$
$$-6$$
$$\overline{1}$$

quotient = ___3___

remainder = ___1___

Check Your Work

3
×2
—
6

6
+1
—
7

2. 73 ÷ 2

Tens	Ones
8 8 8 8 8 8 8 8	8 8 8 8 8 8 8 8 8 8
O O O	0 8 8 8 8 8
O O O	0 8 8 8 8 8

$$2\overline{\smash{)}7\,3}^{3\,6\,r\,1}$$
$$-6$$
$$\overline{1\,3}$$
$$-1\,2$$
$$\overline{1}$$

quotient = ___36___

remainder = ___1___

Check Your Work

36
×2
—
72

72
+1
—
73

3. 6 ÷ 4

Ones
8 8 8 8 8
8
0
0
0
0

$$4\overline{\smash{)}6}^{1\,r\,2}$$
$$-4$$
$$\overline{2}$$

quotient = ___1___

remainder = ___2___

Check Your Work

4
×1
—
4

4
+2
—
6