G4-M3-Lesson 33

1. Tyler solved a division problem by drawing this area model.
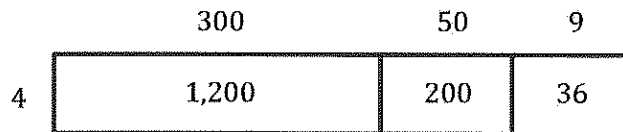
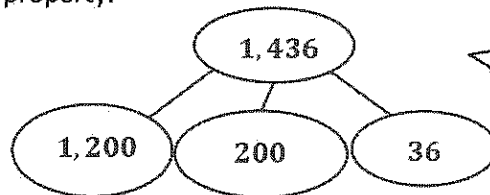|	300	50	9
4	1,200	200	36

> The total area is $1,200 + 200 + 36 = 1,436$. The width is 4. The length is $300 + 50 + 9 = 359$. $A \div w = l$.

a. What division problem did he solve?

Tyler solved $1,436 \div 4 = 359$.

b. Show a number bond to represent Tyler's area model, and represent the total length using the distributive property.

> My number bond shows the same whole and parts as the area model. To represent the length, I divide each of the smaller areas by the width of 4.

$$(1,200 \div 4) + (200 \div 4) + (36 \div 4)$$
$$= \quad 300 \quad + \quad 50 \quad + \quad 9$$
$$= \quad 359$$
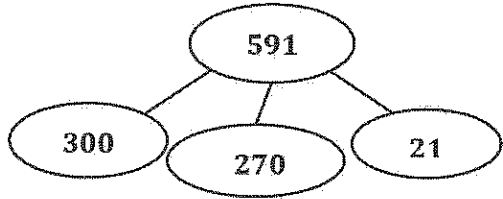
2.

a. Draw an area model to solve $591 \div 3$.

> I decompose the area of 591 into smaller parts that are easy to divide by 3. I start with the hundreds. I distribute 3 hundreds. The area remaining to distribute is 291. I distribute 27 tens. The area remaining to distribute is 21 ones. I distribute the ones. I have a side length of $100 + 90 + 7 = 197$.

	100	90	7
3	300	270	21

$591 \div 3 = 197$

> 3 hundreds, 27 tens, and 21 ones are all multiples of 3, which is the width and divisor.

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Lesson 33: Explain the connection of the area model of division to the long division algorithm for three- and four-digit dividends.

b. Draw a number bond to represent this problem.

$$591$$

$$300 \quad 270 \quad 21$$

My number bond shows the same whole and parts as the area model. To represent the length, I divide each of the smaller areas by the width of 3. I get $100 + 90 + 7 = 197$.

$$(300 \div 3) + (270 \div 3) + (21 \div 3)$$

$$= \quad 100 \; + \; 90 \; + \; 7$$

$$= \quad 197$$

c. Record your work using the long division algorithm.

```
      1 9 7
  3 | 5 9 1
  -   3
     ——
      2 9
  -   2 7
     ——
        2 1
  -     2 1
       ——
          0
```

Lesson 33:   Explain the connection of the area model of division to the long division algorithm for three- and four-digit dividends.

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