Eureka Math

4th Grade
Module 3
Lesson 20

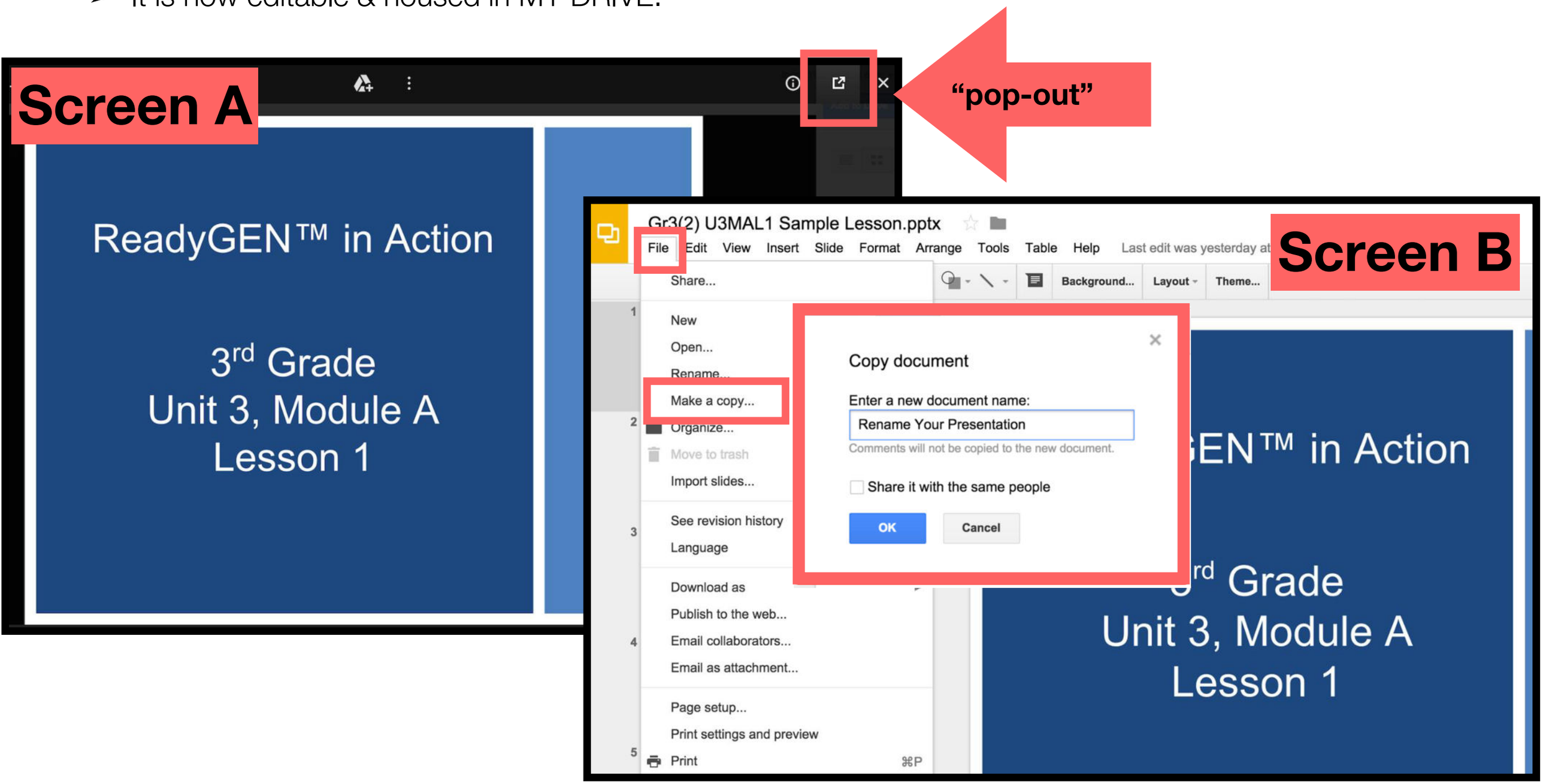
At the request of elementary teachers, a team of Bethel & Sumner educators met as a committee to create Eureka slideshow presentations. These presentations are not meant as a script, nor are they required to be used. Please customize as needed. Thank you to the many educators who contributed to this project!

Directions for customizing presentations are available on the next slide.

Customize this Slideshow

Reflecting your Teaching Style and Learning Needs of Your Students

- ➢ When the Google Slides presentation is opened, it will look like Screen A.
- ➢ Click on the “pop-out” button in the upper right hand corner to change the view.
- ➢ The view now looks like Screen B.
- ➢ Within Google Slides (not Chrome), choose FILE.
- ➢ Choose MAKE A COPY and rename your presentation.
- ➢ Google Slides will open your renamed presentation.
- ➢ It is now editable & housed in MY DRIVE.

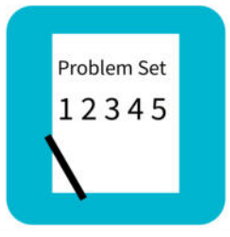


Icons

Read, Draw, Write

Learning Target

Personal White Board

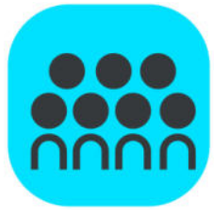


Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

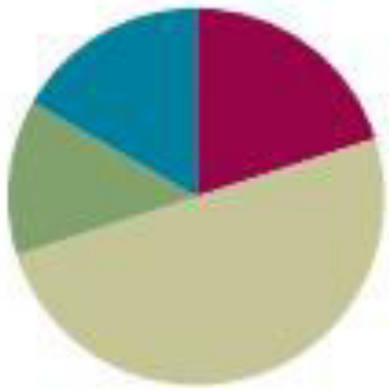
Small Group Time

Lesson 20

Objective: Solve division problems without remainders using the area model.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(8 minutes)
Concept Development	(30 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



I can solve division problems without remainders using the area model.

Fluency Practice

Divide Using the Standard Algorithm

Repeat the process from Lesson 17…

67 ÷ 2

Fluency Practice

Divide Using the Standard Algorithm

Repeat the process from Lesson 17…

67 ÷ 2

60 ÷ 4

Fluency Practice

Divide Using the Standard Algorithm

Repeat the process from Lesson 17…

67 ÷ 2

60 ÷ 4

29 ÷ 3

Fluency Practice

Divide Using the Standard Algorithm

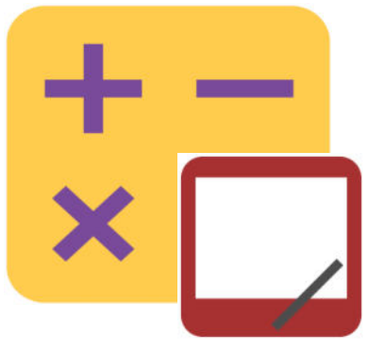
Repeat the process from Lesson 17…

67 ÷ 2

60 ÷ 4

29 ÷ 3

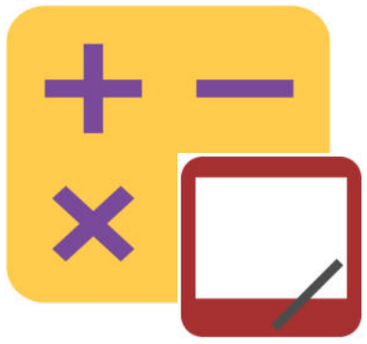
77 ÷ 4



Fluency Practice

Find the Unknown Factor

5 x ____ = 15

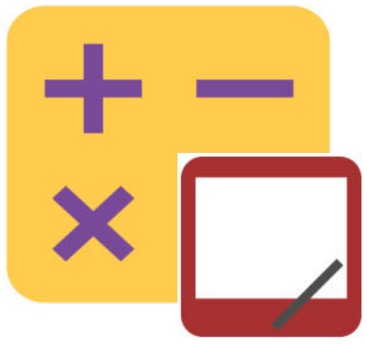


Fluency Practice

Find the Unknown Factor

5 x __3__ = 15

On your personal white board, write the division problem.



Fluency Practice

Find the Unknown Factor

5 x __3__ = 15

On your personal white board, write the division problem.

15 ÷ 5 = 3

Fluency Practice

Find the Unknown Factor

Continue with the following:

$$3 \times \_\_\_\_ = 12$$

Fluency Practice

Find the Unknown Factor

Continue with the following:

$$3 \times \underline{\quad 4 \quad} = 12$$

$$12 \div 3 = 4$$

Fluency Practice

Find the Unknown Factor

Continue with the following:

5 x _____ = 35

Fluency Practice

Find the Unknown Factor

Continue with the following:

$$5 \times \underline{\quad 7 \quad} = 35$$

$$35 \div 5 = 7$$

Fluency Practice

Find the Unknown Factor

Continue with the following:

6 x _____ = 36

7 x _____ = 49

6 x _____ = 48

9 x _____ = 54

Fluency Practice

Mental Multiplication

3 x 2

Say the complete multiplication sentence in unit form

Fluency Practice

Mental Multiplication

3 x 2

Say the complete multiplication sentence in unit form

3 ones x 2 = 6 ones

Fluency Practice

Mental Multiplication

30 x 2

Say the complete multiplication sentence in unit form

Fluency Practice

Mental Multiplication

30 x 2

Say the complete multiplication sentence in unit form

3 tens x 2 = 6 tens

Fluency Practice

Mental Multiplication

30 x 20

Say the complete multiplication sentence in unit form

Fluency Practice

Mental Multiplication

30 x 20

Say the complete multiplication sentence in unit form

3 tens x 2 tens = 6 hundreds

Fluency Practice

Mental Multiplication

Continue with the following:

4 x 2

40 x 2

40 x 20

Fluency Practice

Mental Multiplication

Continue with the following:

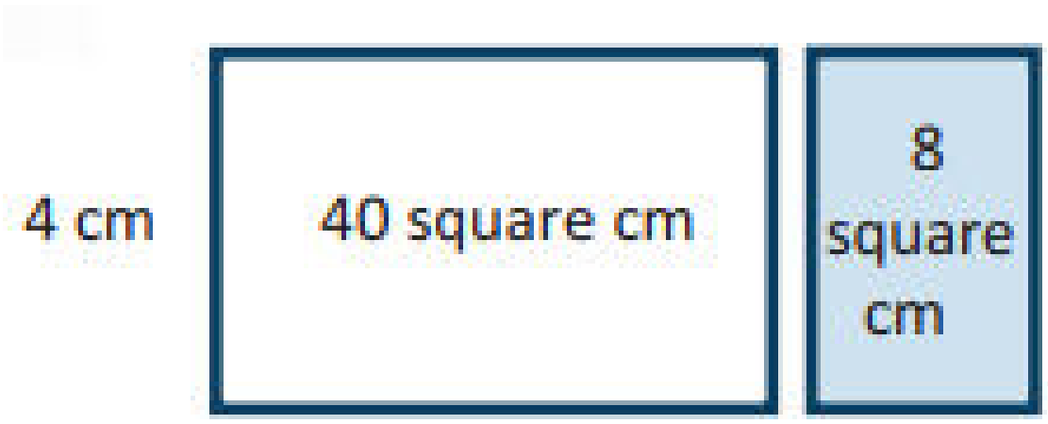
5 x 3

50 x 3

50 x 30

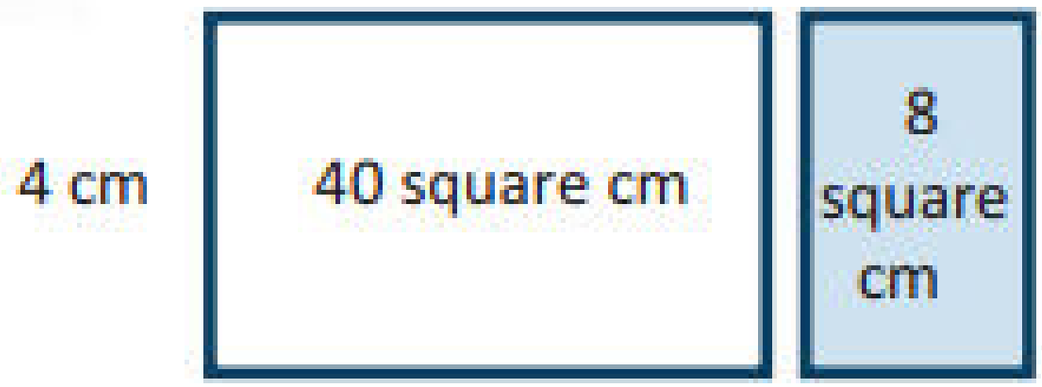
Application Problem

Write an expression to find the unknown length of each rectangle. Then find the sum of the two unknown lengths.



Application Problem

Write an expression to find the unknown length of each rectangle.



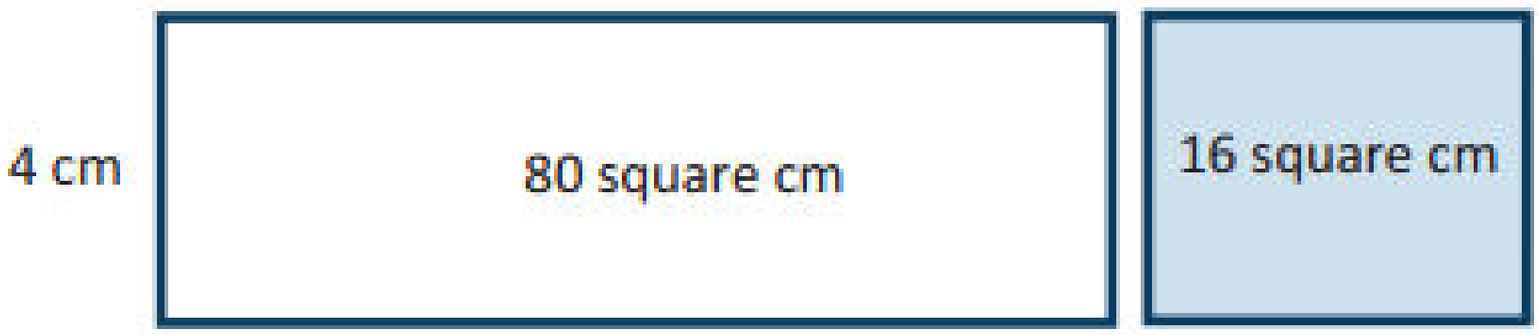
$(40 \div 4) + (8 \div 4)$

$10 + 2 = 12$

12 centimeters

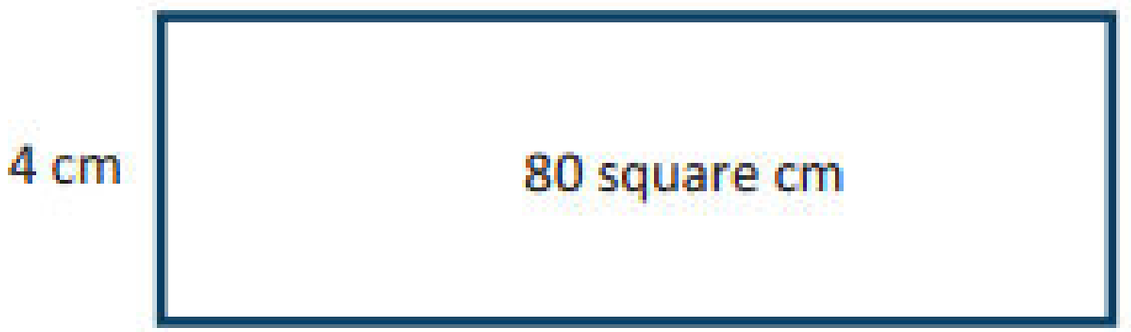
Application Problem

Write an expression to find the unknown length of each rectangle. Then find the sum of the two unknown lengths.



Application Problem

Write an expression to find the unknown length of each rectangle.



$(80 \div 4) + (16 \div 4)$

$20 + 4 = 24$

24 centimeters

Concept Development

Materials

(S) Personal white board

Concept Development

Solve division, without remainders using area model

Use area model to solve.

48 ÷ 4

Draw a rectangle with an area of 48 square units and a width of 4 units.

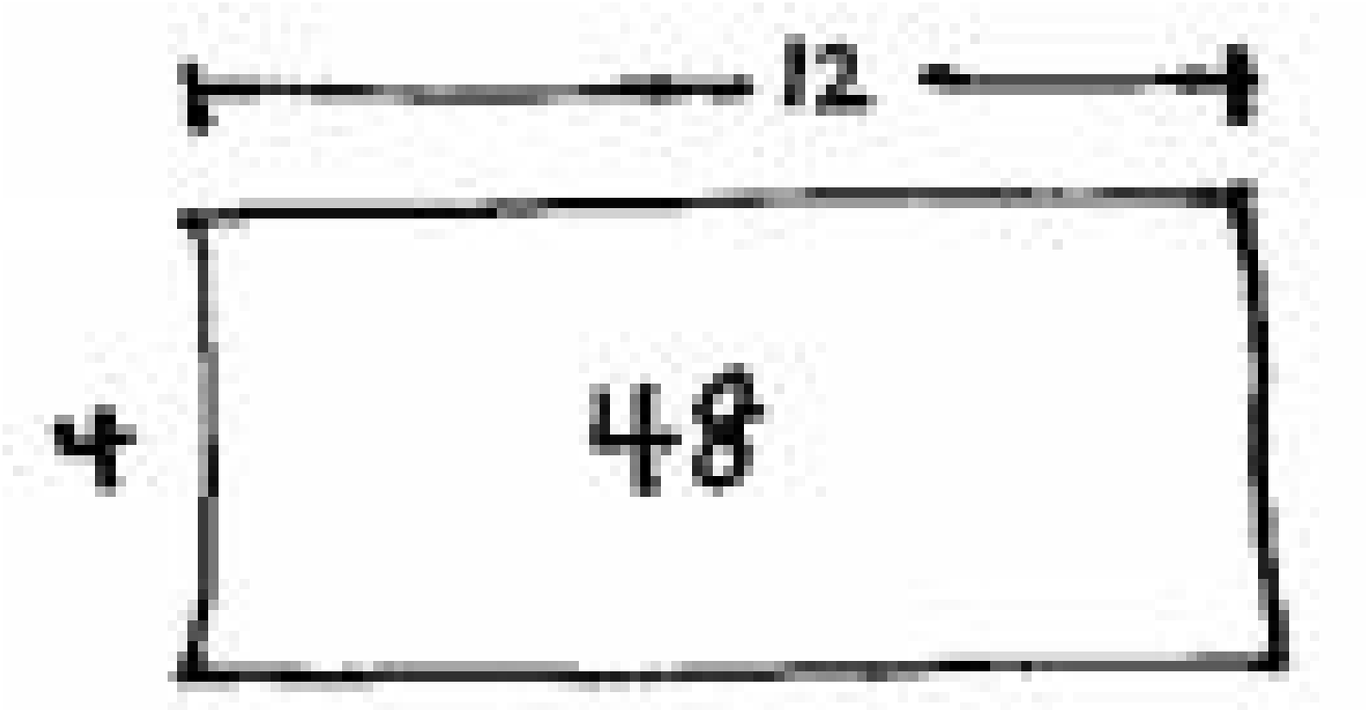
Concept Development

Solve division, without remainders using area model

Use area model to solve.

48 ÷ 4

Draw a rectangle with an area of 48 square units and a width of 4 units.



Concept Development

Solve division, without remainders using area model

Use area model to solve.

48 ÷ 4

Draw a NEW rectangle with the same area directly below, but partitioned into tens and ones.

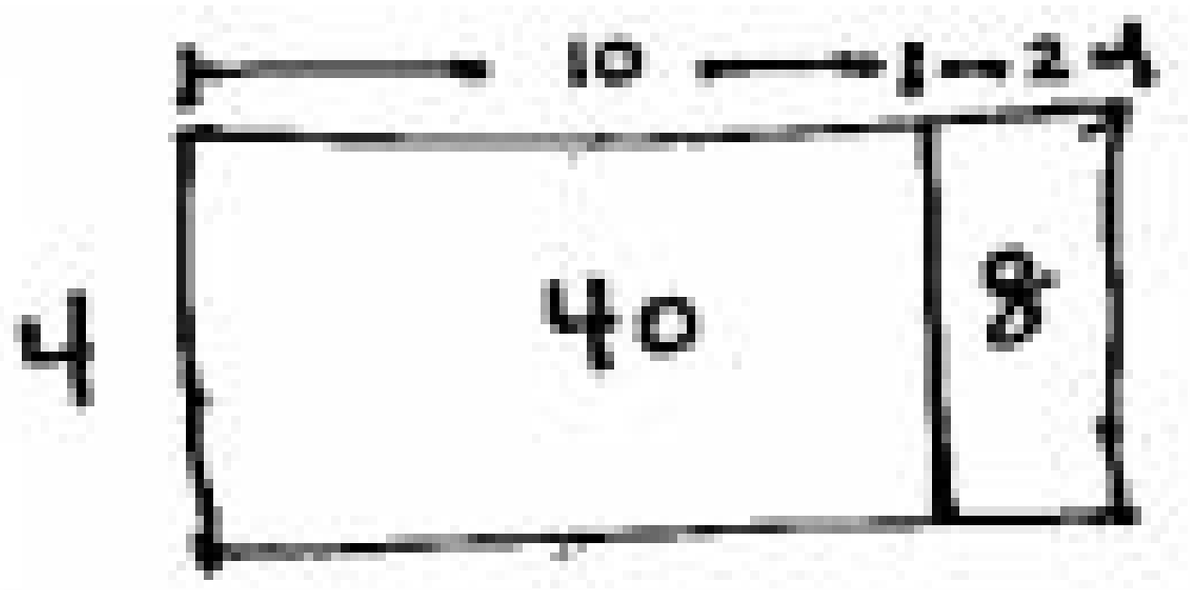
Concept Development

Solve division, without remainders using area model

Use area model to solve.

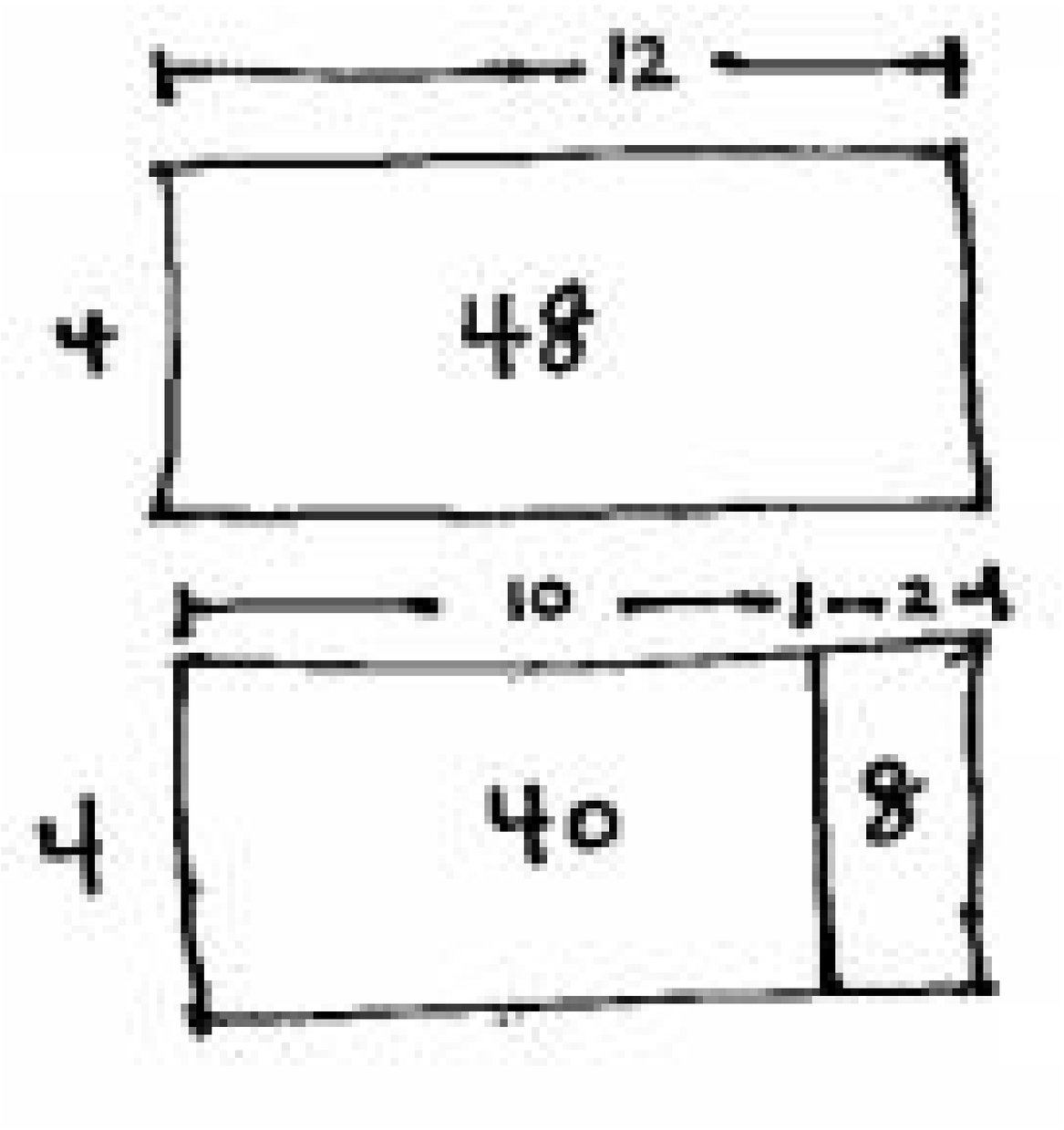
48 ÷ 4

Draw a NEW rectangle with the same area directly below, but partitioned into tens and ones.



Concept Development

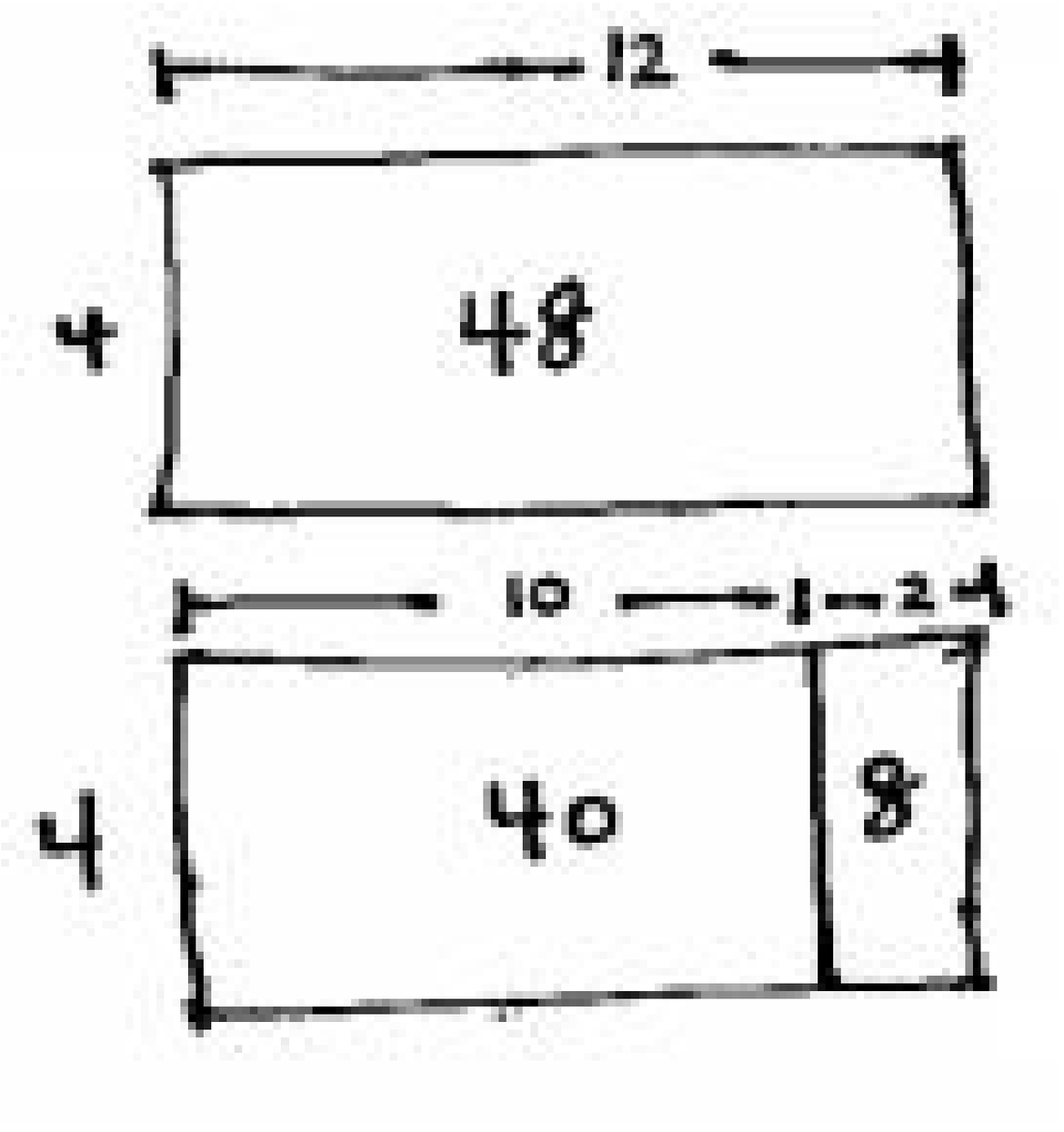
Solve division, without remainders using area model

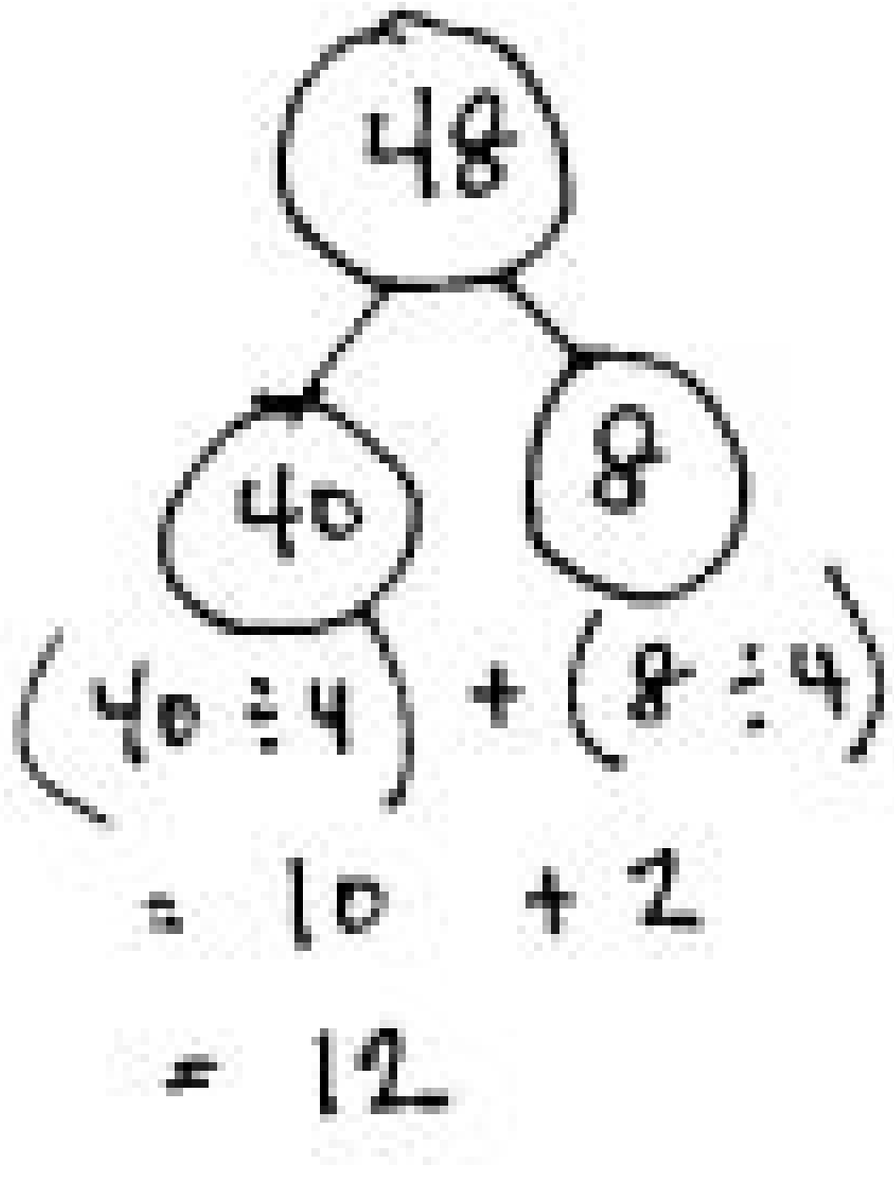


Let's draw a number bond to match the whole and parts of the rectangle.

Concept Development

Solve division, without remainders using area model





Concept Development

Solve division, without remainders using area model

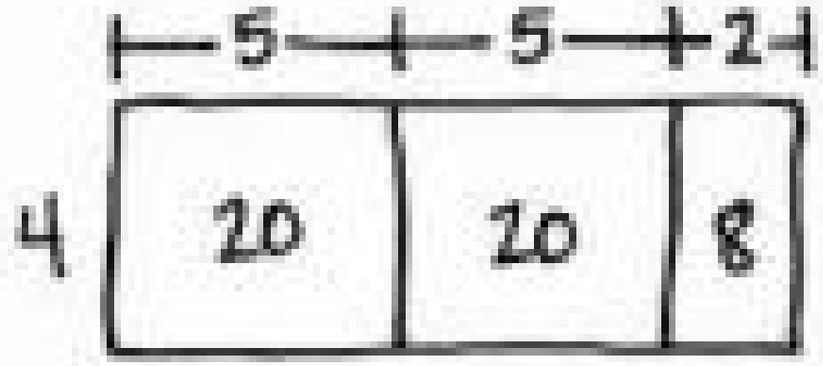
Work with your partner to partition the same area of 48 as 2 twenties and 8.

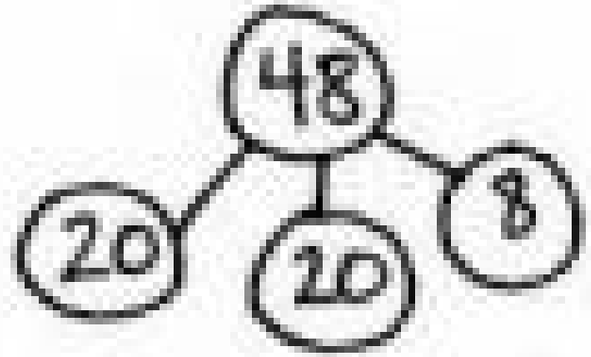
When you are finished, try to find *another* way to partition the area of 48 so it's easy to divide.

Concept Development

Solve division, without remainders using area model

Work with your partner to partition the same area of 48 as 2 twenties and 8.





$(20 \div 4) + (20 \div 4) + (8 \div 4)$

$= 5 + 5 + 2$

$= 12$

Concept Development

Solve division, without remainders using area model

What other way did you and your partner partition the area of 48?

Concept Development

Solve division, without remainders using area model

Use area model to solve.

96 ÷ 4

Draw a rectangle with an area of 96 square units and a width of 4 units.

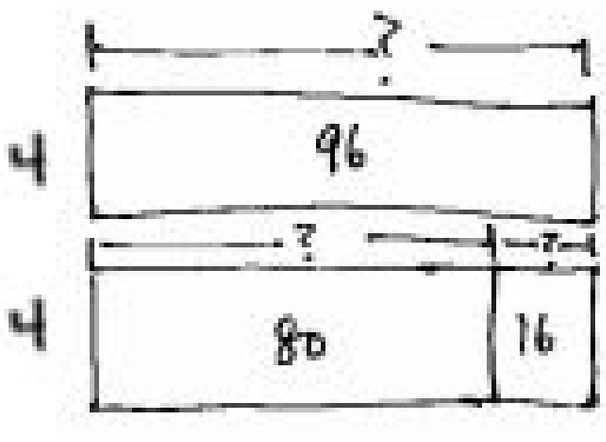
Partition the area to be easily divisible by 4.

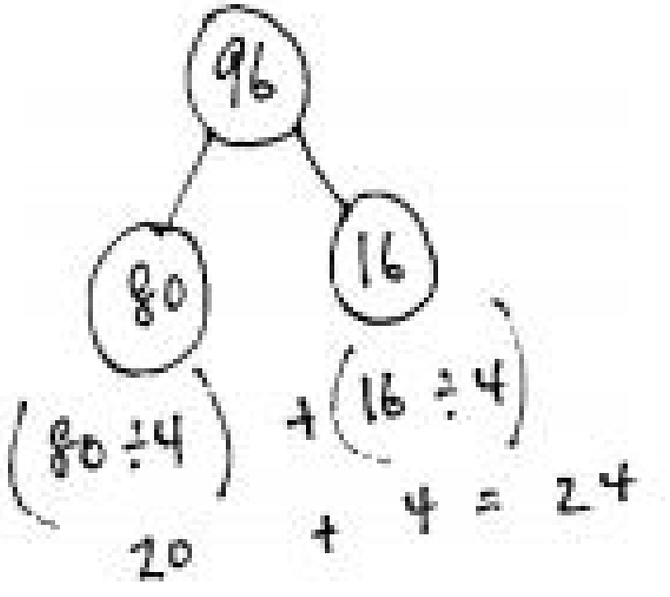
Concept Development

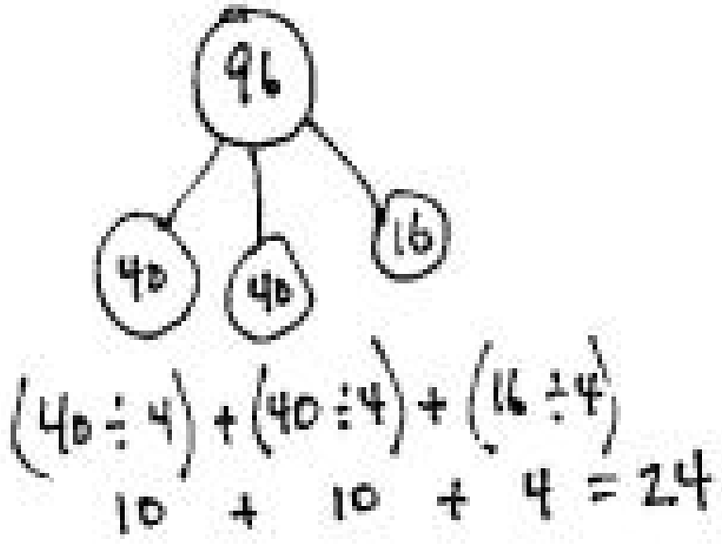
Solve division, without remainders using area model

Use area model to solve.

96 ÷ 4







Concept Development

Solve division, without remainders using area model

Compose from part to whole

96 ÷ 4

Thinking about area, let's try a new way to divide!

We know the area is 96 square units. We are trying to find out the length of the unknown side.

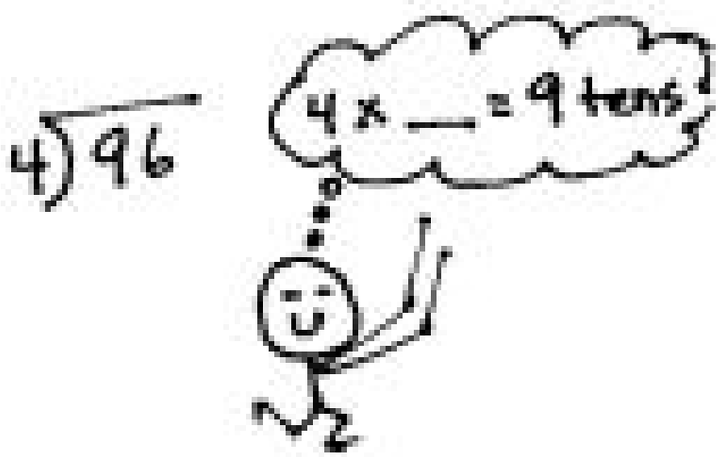
Concept Development

Solve division, without remainders using area model

Compose from part to whole

96 ÷ 4

4 times how many tens gets us as close as possible to an area of 9 tens?



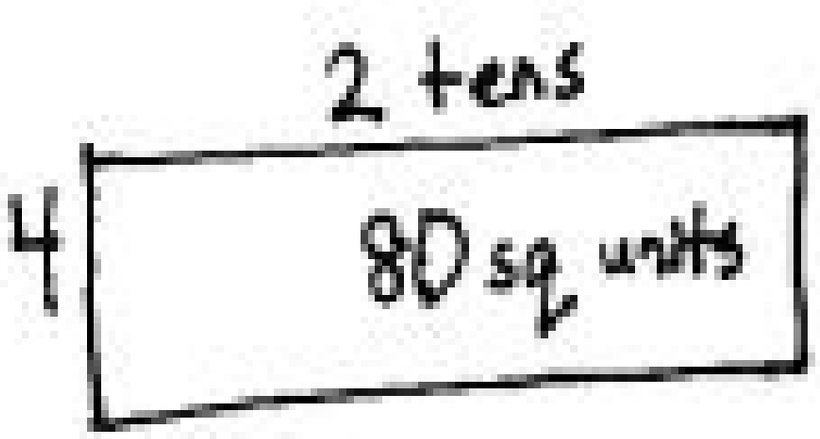
Concept Development

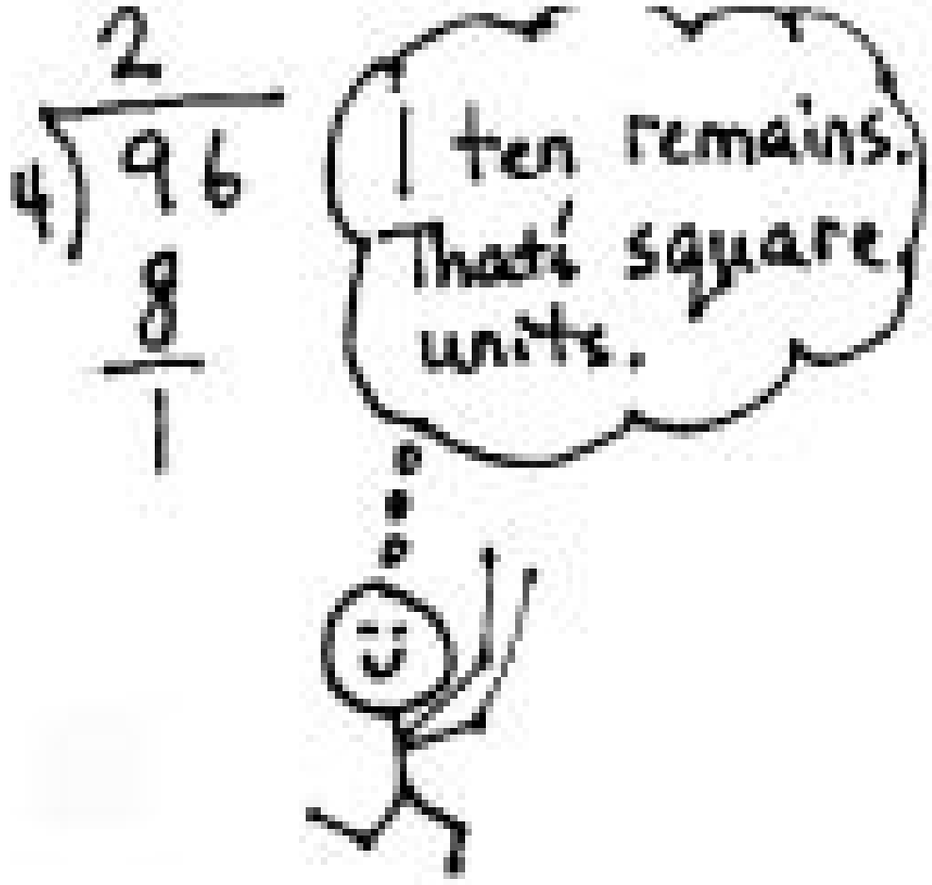
Solve division, without remainders using area model

Compose from part to whole

96 ÷ 4

Let's give 2 tens to the length.





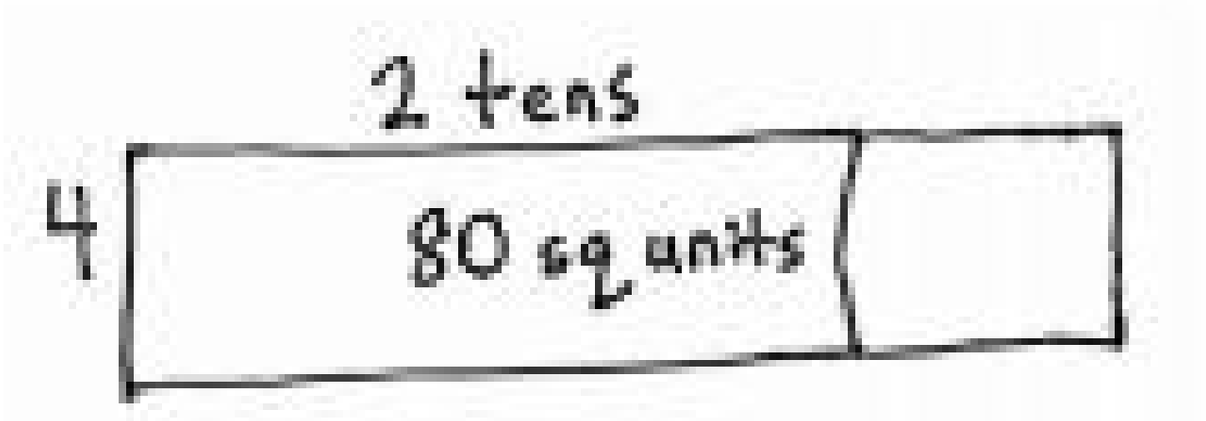
Concept Development

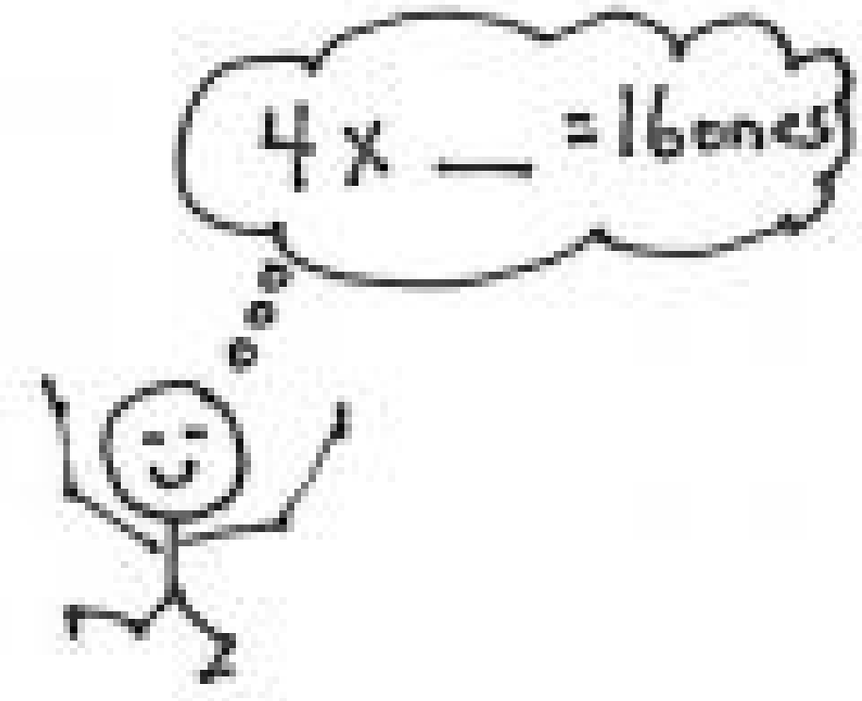
Solve division, without remainders using area model

Compose from part to whole

We have 16 square units remaining with a width of 4.

Four times how many ones gets us as close as possible to an area of 16 square units?





Concept Development

Solve division, without remainders using area model

Compose from part to whole

We have no more area to divide.

What is the length of the unknown side?

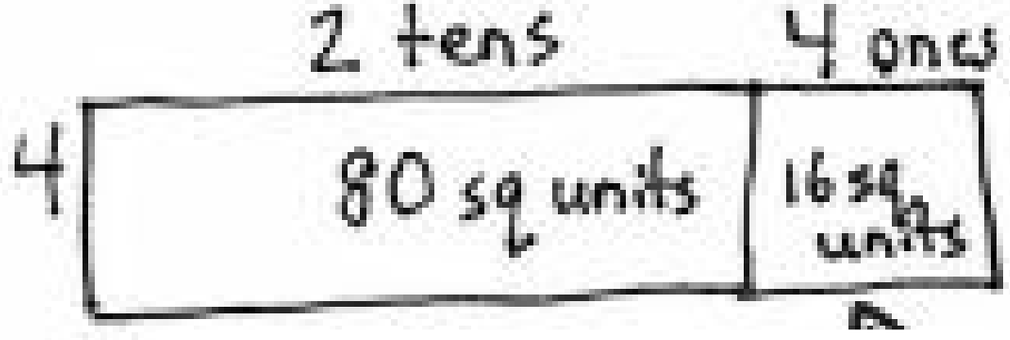
Concept Development

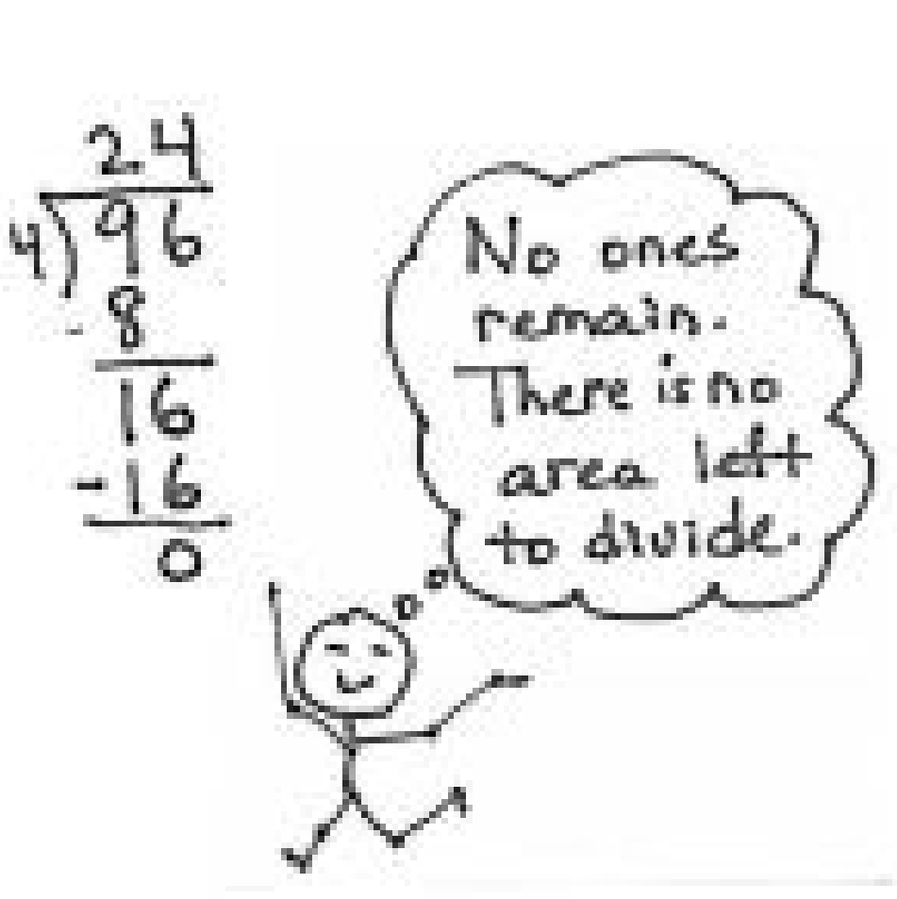
Solve division, without remainders using area model

Compose from part to whole

We have no more area to divide.

What is the length of the unknown side?



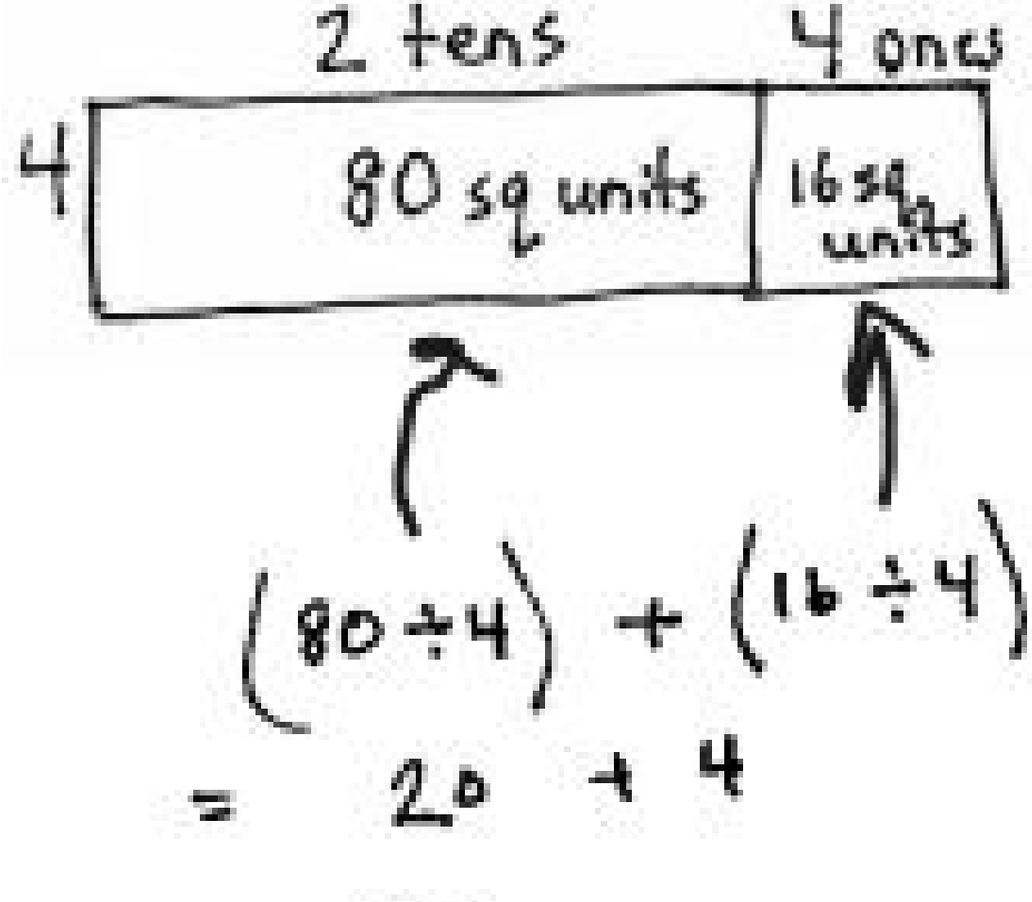


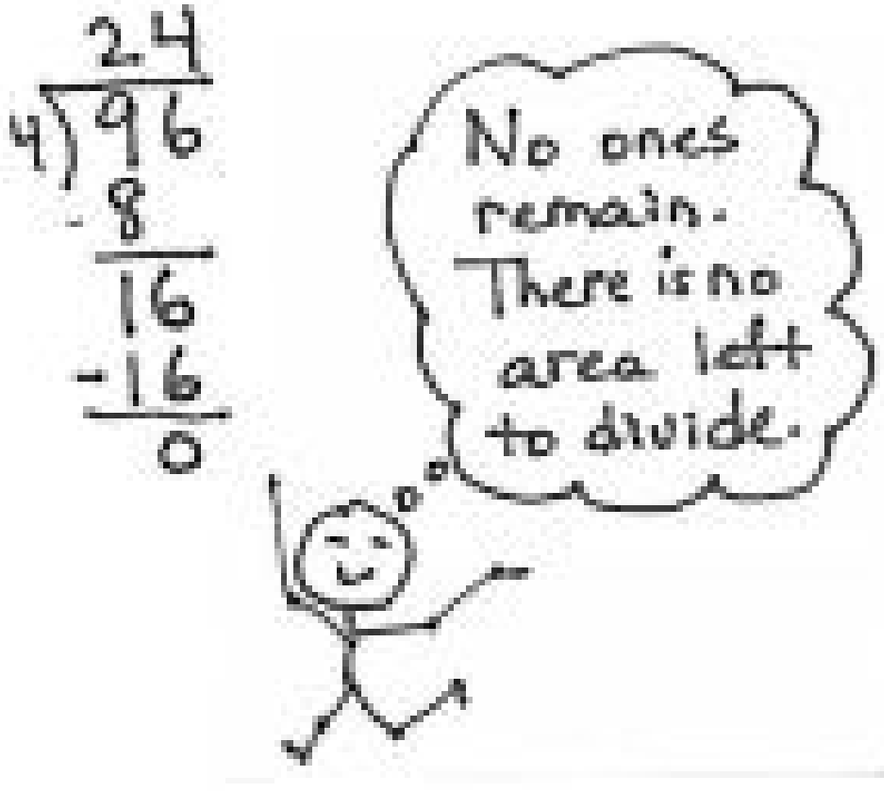
Concept Development

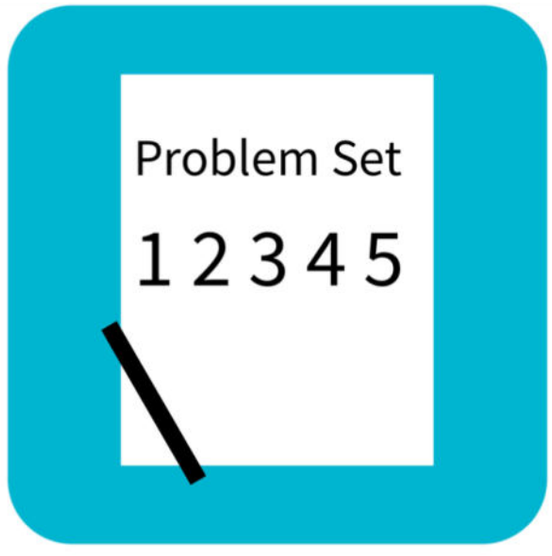
Solve division, without remainders using area model

Compose from part to whole

How can we express the length of the unknow side using the distributive property?





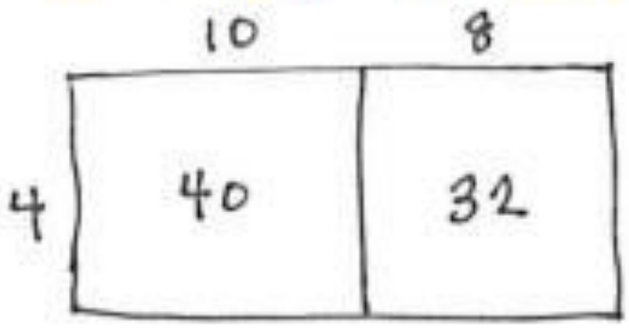


Problem Set

Name _____ Date _____

1. Alfonso solved a division problem by drawing an area model.

   a. Look at the area model. What division problem did Alfonso solve?



Debrief

In Problem 2, did you partition the rectangle the same way as your partner? Why were we able to go from whole to part?

Explain the connection between the written method, the number bond, and the area model in Problem 3.

In the last problem, explain the connection between the algorithm and the area model.

Debrief

Each time we divide, what happens to the amount of area we still have left to divide?

Even though division is messy, I think it is the most interesting operation of all because– imagine this–sometimes that little piece that is left to divide is always there, even though it gets infinitely small! Talk to your partner about what you think I might mean by that.

Exit Ticket

Name _____ Date _____

1. Tony drew the following area model to find an unknown length. What division equation did he model?