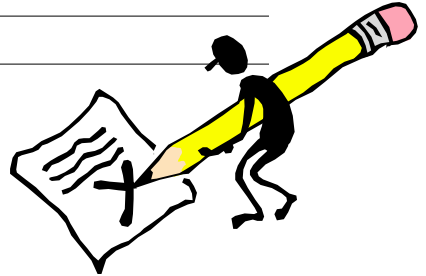


Math Journal



Learning Target

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

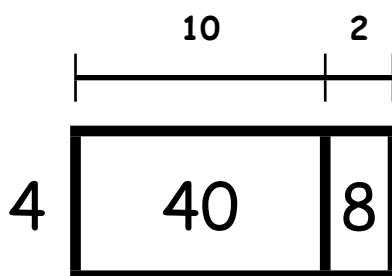
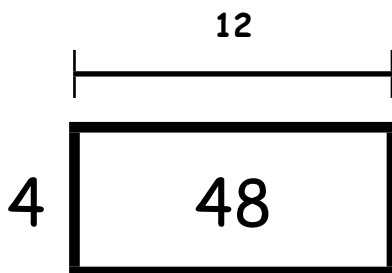
USING AREA TO ASSIST

The area model provides a powerful visual of how and why the standard algorithm works. By applying this model and using it to assist understanding, efficient and effective problem solving will result.

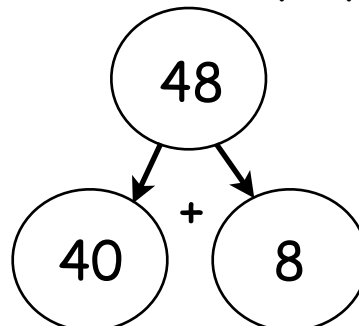
Decompose $48 \div 4$ from whole to part.

$$48 \div 4 = m$$

Area Model



Decomposition
(Distributive Property)



$$\begin{aligned} &= (40 \div 4) + (8 \div 4) \\ &= 10 + 2 \\ &= 12 \end{aligned}$$

Standard
Algorithm

$$\begin{array}{r} 4 \overline{) 48} \end{array}$$

Reflect:

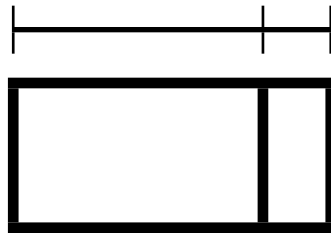
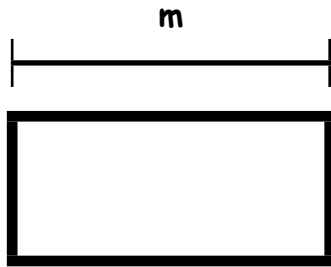
What other ways can the area of 48 be partitioned to make it easy to divide?



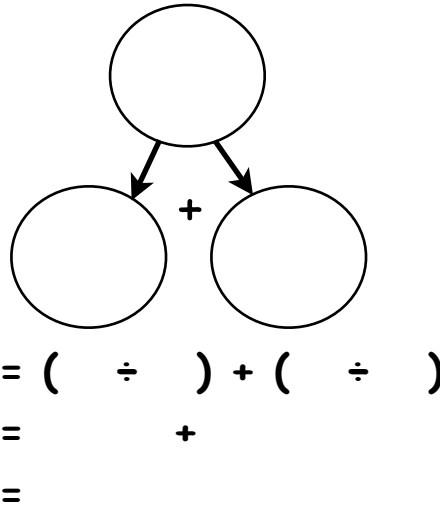
Decompose $96 \div 4$ from whole to part.

$$96 \div 4 = m$$

Area Model



Decomposed Number Bonds
(Distributive Property)



Standard Algorithm

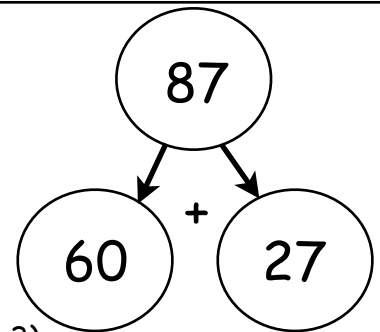
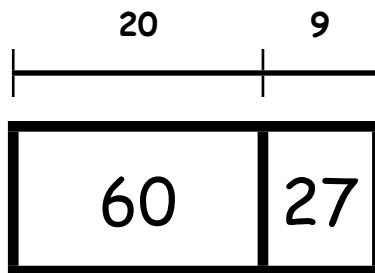


Reflect:

What other ways can the area of 96 be partitioned to make it easy to divide?



Mots Mathématiques



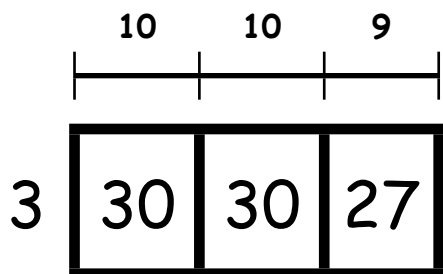
$$= (60 \div 3) + (27 \div 3)$$

$$= 20 + 9 = 29$$

Partition:

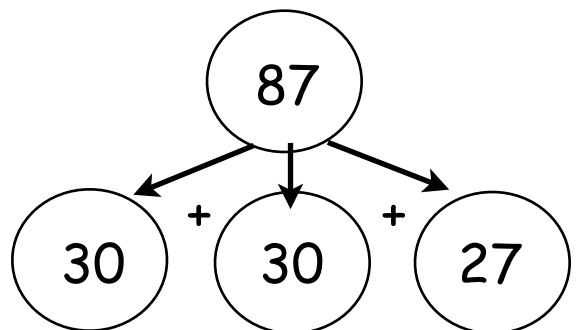
to solve by breaking apart

Ex. $87 \div 3 = m$



$$= (30 \div 3) + (30 \div 3) + (27 \div 3)$$

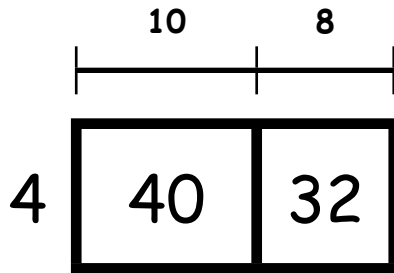
$$= 10 + 10 + 9 = 29$$



Lele solved a division problem by drawing an area model.

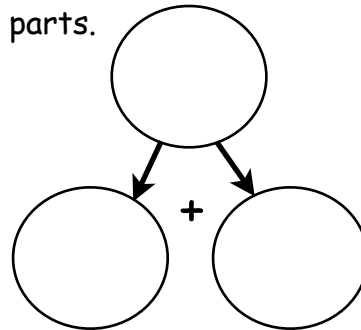
Area Model

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



Decomposed Number Bonds

Show a number bond to represent Lele's area model. Start with the total, and then show how the total is split into two parts.



Distributive Property

Represent the total length using the distributive property, and then solve.

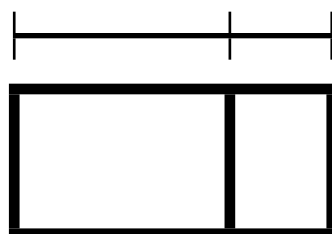
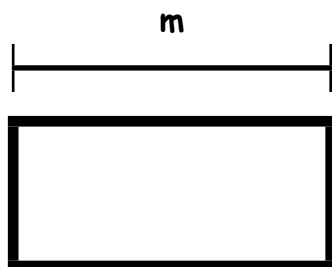
$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

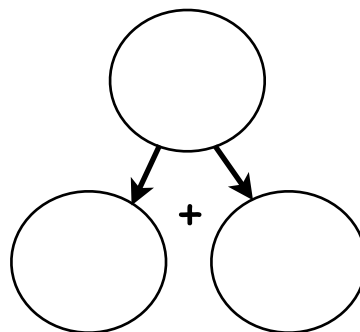
$$=$$

Solve $45 \div 3$ using an area model. Draw a number bond, and use the distributive property to solve for the unknown length.

Area Model



**Decomposed Number Bonds
(Distributive Property)**

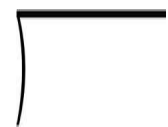


$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

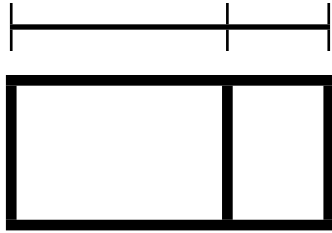
$$=$$

**Standard
Algorithm**

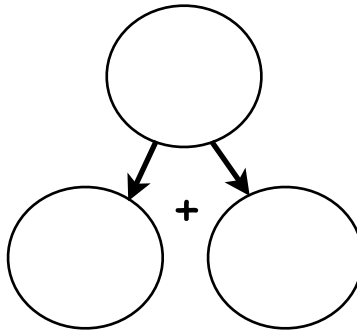


Solve $64 \div 4$ using an area model. Draw a number bond to show how you partitioned the area, and use the distributive property to solve for the unknown length.

Area Model



Decomposed Number Bonds



Distributive Property

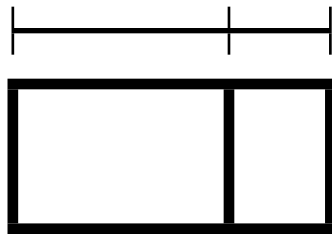
$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

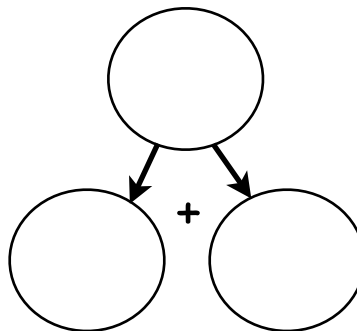
$$=$$

Solve $92 \div 4$ using an area model. Draw a number bond to show how you partitioned the area, and use the distributive property to solve for the unknown length.

Area Model



Decomposed Number Bonds



Distributive Property

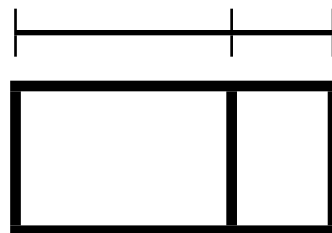
$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

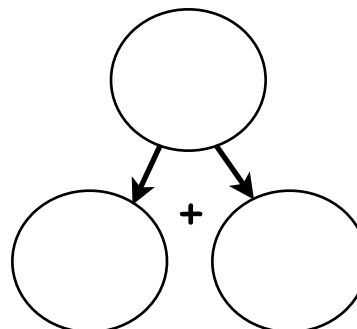
$$=$$

Solve $72 \div 6$ using an area model. Draw a number bond to show how you partitioned the area, and use the distributive property to solve for the unknown length.

Area Model



Decomposed Number Bonds



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

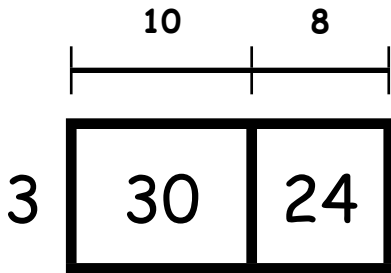
$$=$$

Explain:

Mina solved a division problem by drawing an area model.

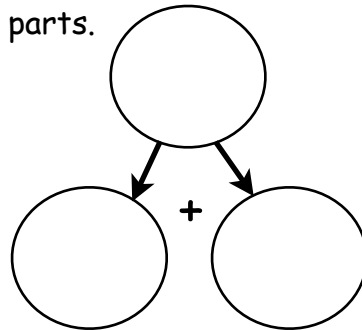
Area Model

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



Decomposed Number Bonds

Show a number bond to represent Mina's area model. Start with the total, and then show how the total is split into two parts.



Distributive Property

Represent the total length using the distributive property, and then solve.

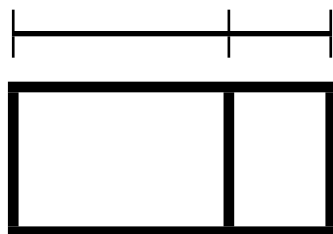
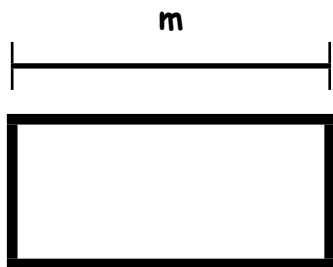
$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

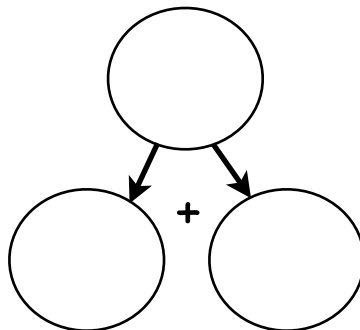
$$=$$

Solve $42 \div 3$ using an area model. Draw a number bond, and use the distributive property to solve for the unknown length.

Area Model



Decomposed Number Bonds (Distributive Property)



$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

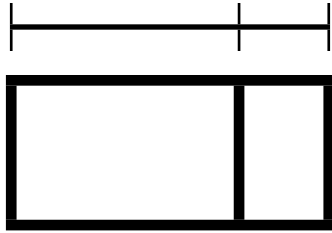
$$=$$

Standard Algorithm

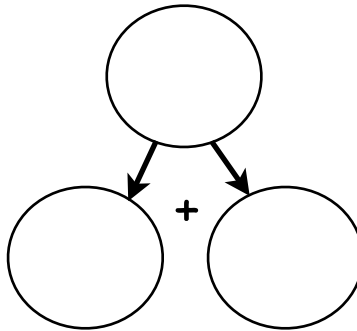


Solve $60 \div 4$ using an area model. Draw a number bond to show how you partitioned the area, and use the distributive property to solve for the unknown length.

Area Model



Decomposed Number Bonds



Distributive Property

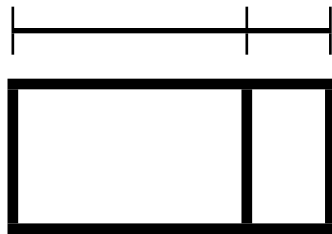
$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

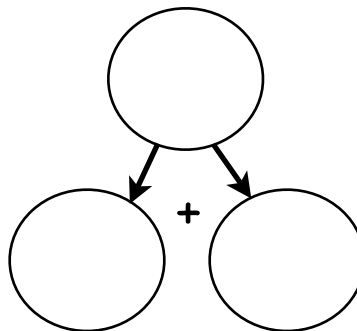
$$=$$

Solve $72 \div 4$ using an area model. Draw a number bond to show how you partitioned the area, and use the distributive property to solve for the unknown length.

Area Model



Decomposed Number Bonds



Distributive Property

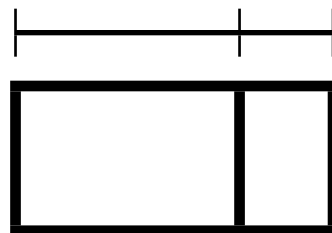
$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

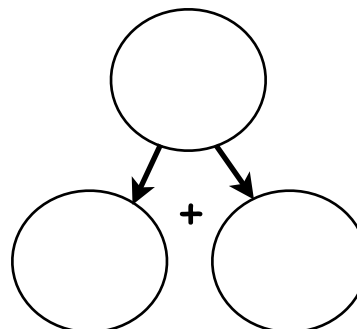
$$=$$

Solve $96 \div 6$ using an area model. Draw a number bond to show how you partitioned the area, and use the distributive property to solve for the unknown length.

Area Model



Decomposed Number Bonds



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

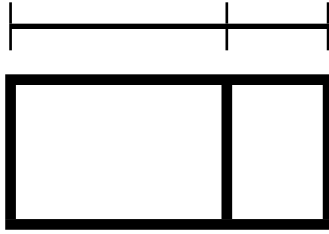
$$= \quad + \quad$$

$$=$$

Explain:

Solve $37 \div 2$ using an area model. Use the distributive property to solve for the unknown length. Check your answer using multiplication.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

$$= \quad$$

Standard Algorithm



Check:

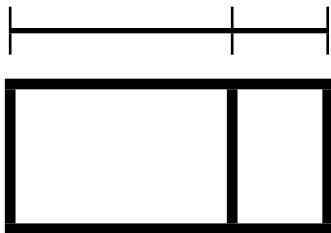
Reflect:

How does the area model change when there is a remainder?



Solve $76 \div 3$ using an area model. Use the distributive property to solve for the unknown length. Check your answer using multiplication.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

$$= \quad$$

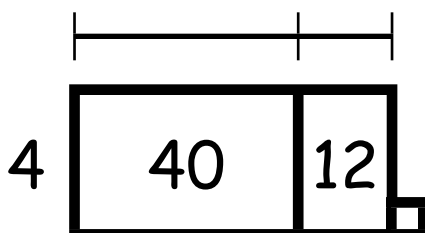
Standard Algorithm



Check:

David solved the following division problem by drawing an area model. What division problem did he solve? Show how David's model can be represented using the distributive property.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

$$= \quad$$

Standard

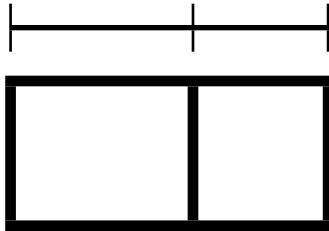


Check:

1 square unit

Solve $48 \div 3$ using an area model. Use the distributive property to solve for the unknown length. Check your answer using multiplication.

Area Model



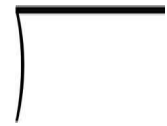
Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

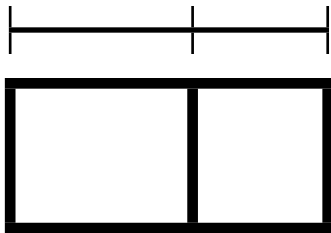
$$=$$

Standard Algorithm



Solve $49 \div 3$ using an area model. Use the distributive property to solve for the unknown length. Check your answer using multiplication.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

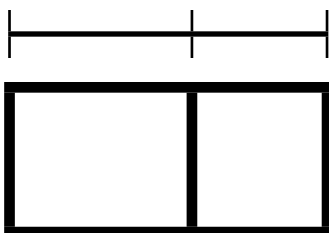
$$=$$

Standard Algorithm



Solve $56 \div 4$ using an area model. Use the distributive property to solve for the unknown length. Check your answer using multiplication.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

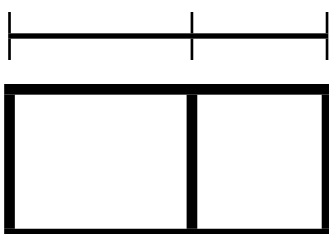
$$=$$

Standard Algorithm



Solve $58 \div 4$ using an area model. Use the distributive property to solve for the unknown length. Check your answer using multiplication.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

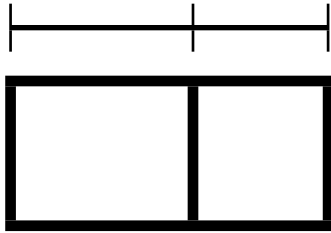
$$=$$

Standard Algorithm



Solve $66 \div 5$ using an area model. Use the distributive property to solve for the unknown length. Check your answer using multiplication.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

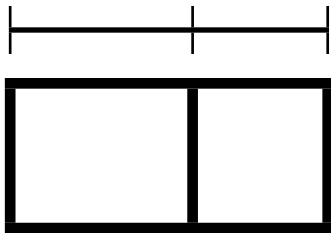
$$=$$

Standard Algorithm



Solve $79 \div 3$ using an area model. Use the distributive property to solve for the unknown length. Check your answer using multiplication.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

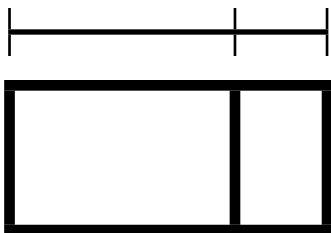
$$=$$

Standard Algorithm



Seventy-three students are divided into groups of 6 students each. How many groups of 6 students are there? How many students will not be in a group of 6?

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

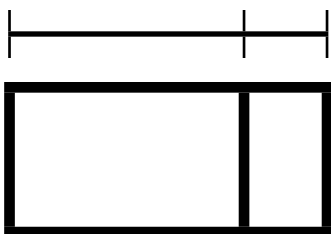
$$=$$

Standard Algorithm



Solve $35 \div 2$ using an area model. Use the distributive property to solve for the unknown length. Check your answer using multiplication.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

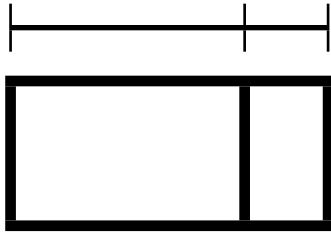
$$=$$

Standard Algorithm



Solve $79 \div 3$ using an area model. Use the distributive property to solve for the unknown length. Check your answer using multiplication.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

$$=$$

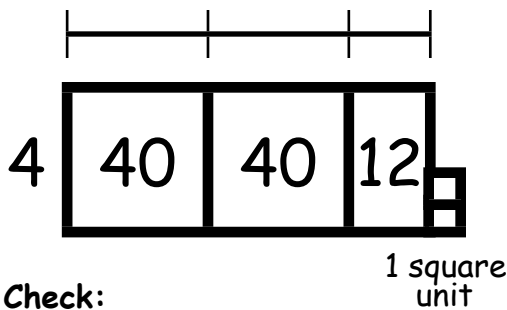
Standard Algorithm



Check:

Lea solved the following division problem by drawing an area model. What division problem did she solve? Show how Lea's model can be represented using the distributive property.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

$$=$$

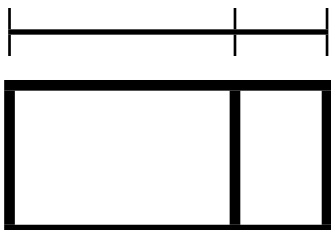
Standard Algorithm



Check:

Ninety-seven lunch trays were placed equally in 4 stacks. How many lunch trays were in each stack. How many lunch trays will be left over?

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

$$=$$

Standard Algorithm



Check:

Homeroom: R

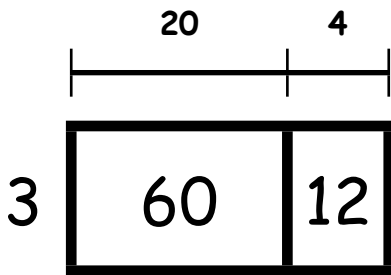
Name: _____

Date: _____

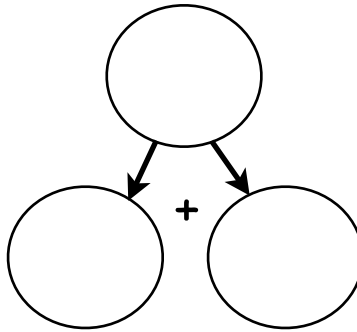


Nasaina drew the following area model to find an unknown length.
What division equation did he model?

Area Model



Decomposed Number Bonds



Distributive Property

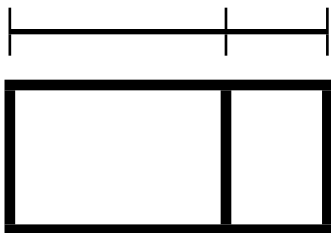
$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

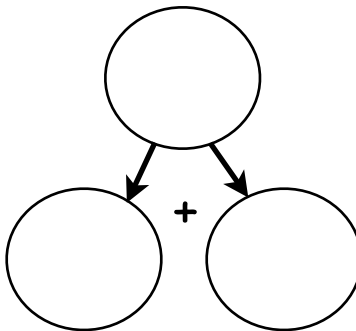
$$=$$

Solve $42 \div 3$ using the area model, a number bond, and a written method.

Area Model



Decomposed Number Bonds



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

$$=$$

Explain:



Homeroom: R

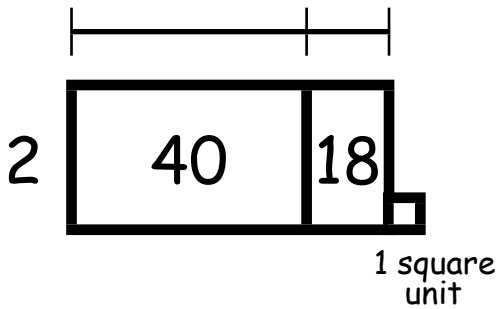
Name: _____

Date: _____



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

Area Model



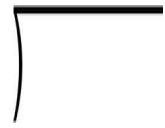
Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

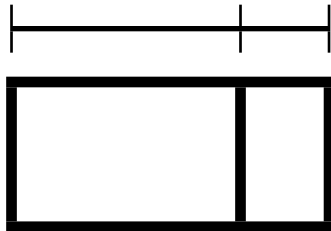
$$=$$

Standard Algorithm



Solve $93 \div 4$ using the area model, long division, and the distributive property.

Area Model



Distributive Property

$$= (\quad \div \quad) + (\quad \div \quad)$$

$$= \quad + \quad$$

$$=$$

Standard Algorithm

