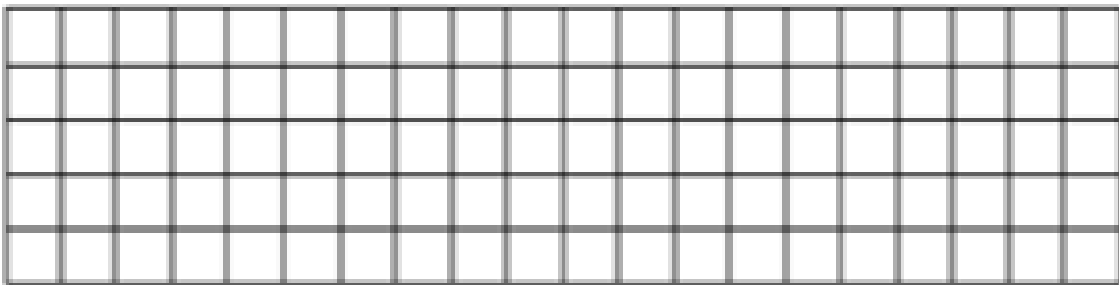


MULTIPLYING AND DIVIDING USING AREA MODELS

PROBLEM #1

Your school needs to determine how many seats are available for this year's 8th grade graduation. An array of the seating is provided and each unit square represents a seat.

1. *Fold (or divide with a line) your array into smaller rectangles to help you quickly count the total seats. (You only know your multiplication facts to 10.)*

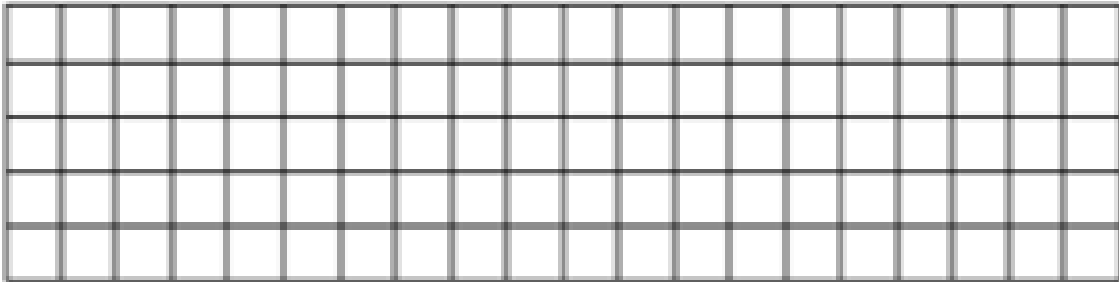


2. *Using your rectangles, create an equation representing the total area of the original rectangle.*
3. *Write a multiplication sentence using the Area Formula that represents the WHOLE rectangle to show the total seats.*

PROBLEM #2

If 2 columns of seats were removed from your array, how would that change the way you find the total seats? **(You only know your multiplication facts to 10.)**

1. *Fold (or divide with a line) your array into smaller rectangles to help you quickly count the total seats.*



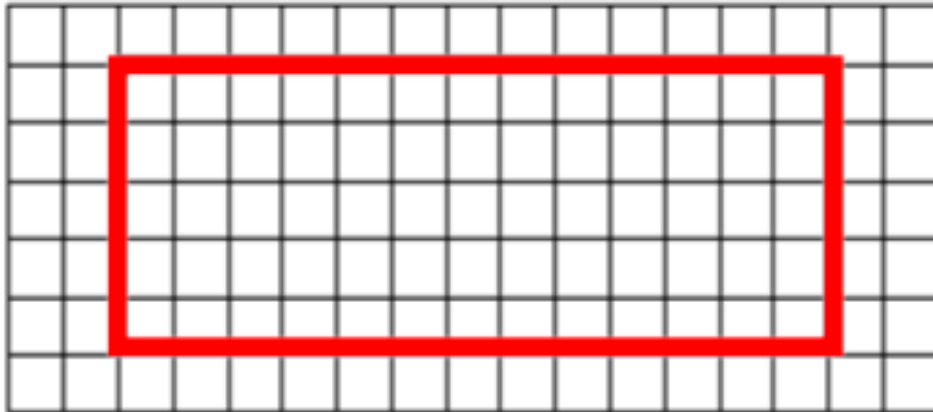
2. *Using your rectangles, create an equation representing the total area of the original rectangle.*

3. *Write a multiplication sentence using the Area Formula that represents the WHOLE rectangle to show the total seats.*

PROBLEM #3

The outlined rectangle, again, represents the total number of seats at a graduation. Race against your partner to find the fastest way to count the total seats. **(You only know your multiplication facts to 10.)**

1. *Decompose the array into smaller rectangles to help you quickly count the total seats.*



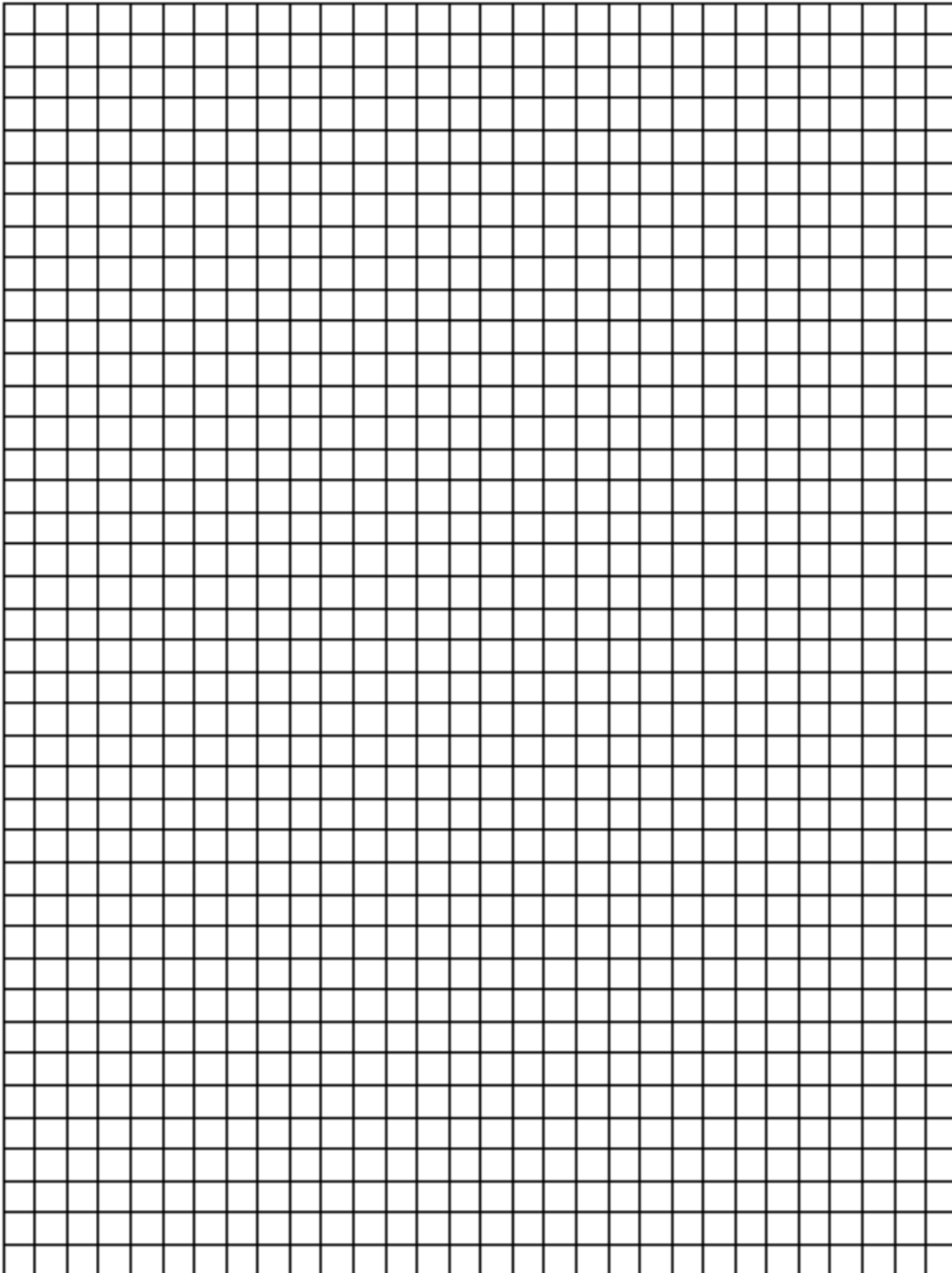
2. *Using your rectangles, create an equation representing the total area of the original rectangle.*
3. *Write a multiplication sentence using the Area Formula that represents the WHOLE rectangle to show the total seats.*

PROBLEM #4

Find the product using an array. (You only know your multiplication facts to 10.)

$$**18 \times 26**$$

- 1. Decompose the array into smaller rectangles to help you quickly find the product.*



2. *Using your rectangles, create an equation representing the total area of the original rectangle.*

3. *What if we had no graph paper? What would an “Open Area Model” look like? **(18 x 26)***

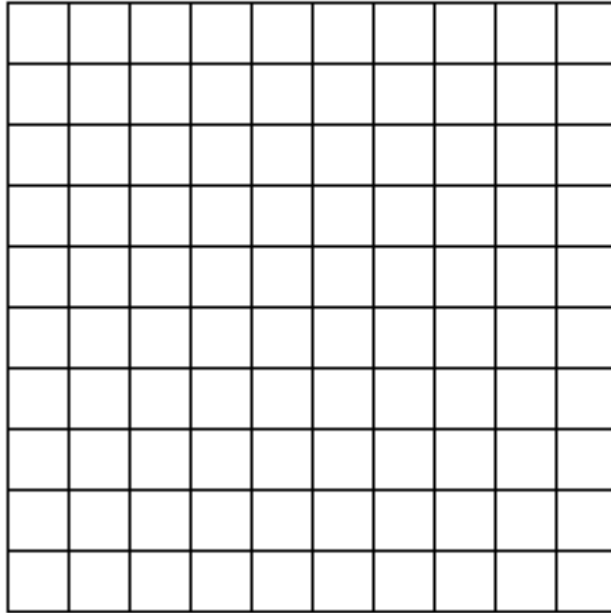
4. *How does this connect to a standard algorithm? Try it!*

PROBLEM #5

You have to set up chairs in your cafeteria for a band concert. You have a total of 54 chairs and need 6 rows. How many chairs will be in each row?

(You only know your facts to 5.)

1. *Draw an array to show the number of chairs in each row. Draw lines on your array to show your thinking.*



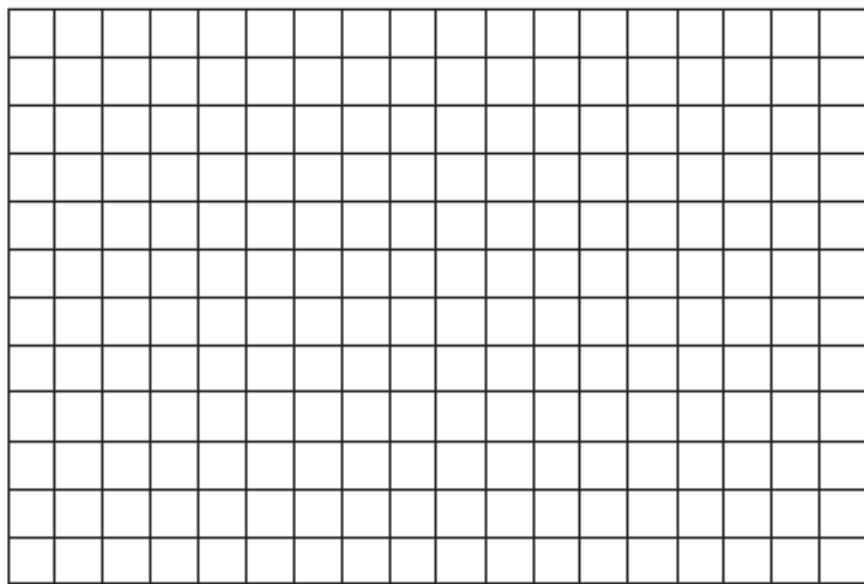
2. *Write a **division** sentence to show how you found the number of chairs in each row.*

3. *Write a **multiplication sentence** to validate your thinking.*

PROBLEM #6

You have to set up chairs for a wedding. There are a total of 110 chairs and you need 7 rows. How many chairs will be in each row?

1. Draw an array **AND** open area model to show the number of chairs in each row. Draw lines on your array to show your thinking.



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2. Write a **division** sentence to show how you found the number of chairs in each row.

3. Write a **multiplication sentence** to validate your thinking.

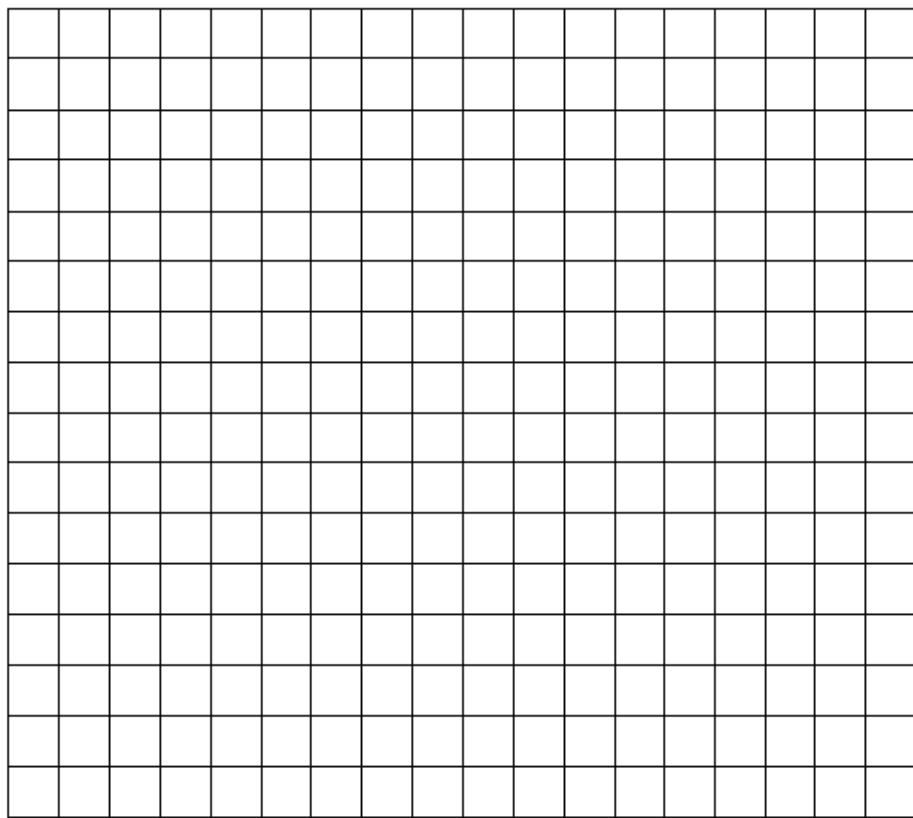
4. How does this connect to a standard algorithm? Try it!

PROBLEM #7

Find the quotient using an array and open area model.

$$225 \div 14$$

1. Draw an array **AND** open area model to find the quotient. Draw lines on your array to show your thinking.



Continued on next page...

2. Write a **multiplication sentence** to validate your thinking.

3. How does this connect to **a** standard algorithm? Try it!

