

Getting to the Core

Grade 4 Unit of Study

Division

Pages for Group Work

Hundred Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

<p>Tim's Number</p>	<p>Tim's Number</p>
<p>Tim's number is a multiple of three.</p> <p>Help your group find Tim's number on the Hundred's Chart.</p>	<p>Tim's number is a multiple of five.</p> <p>Help your group find Tim's number on the Hundred's Chart.</p>
<p>Tim's Number</p>	<p>Tim's Number</p>
<p>If you add the digits of Tim's number, you get an odd number.</p> <p>Help your group find Tim's number on the Hundred's Chart.</p>	<p>Tim's number is odd.</p> <p>Help your group find Tim's number on the Hundred's Chart.</p>
<p>Tim's Number</p>	<p>Tim's Number</p>
<p>If you multiply the digits of Tim's number together, you get an even number.</p> <p>Help your group find Tim's number on the Hundred's Chart.</p>	<p>Tim's number is near the center of the chart.</p> <p>Help your group find Tim's number on the Hundred's Chart.</p>

<p>Meg's Number</p>	<p>Meg's Number</p>
<p>The sum of the digits of Meg's number is greater than ten.</p> <p>Help your group find Meg's number on the Hundred's Chart.</p>	<p>The difference between the two digits of Meg's number is greater than three.</p> <p>Help your group find Meg's number on the Hundred's Chart.</p>
<p>Meg's Number</p>	<p>Meg's Number</p>
<p>Meg's number is a multiple of seven.</p> <p>Help your group find Meg's number on the Hundred's Chart.</p>	<p>The first digit of Meg's number is larger than the second.</p> <p>Help your group find Meg's number on the Hundred's Chart.</p>
<p>Meg's Number</p>	<p>Meg's Number</p>
<p>Meg's number is not odd.</p> <p>Help your group find Meg's number on the Hundred's Chart.</p>	<p>Both digits of Meg's number are even.</p> <p>Help your group find Meg's number on the Hundred's Chart.</p>

<p>Paul's Number</p>	<p>Paul's Number</p>
<p>Paul's number is not located on an edge or a corner.</p> <p>Help your group find Paul's number on the Hundred's Chart.</p>	<p>Paul's number is not an even number.</p> <p>Help your group find Paul's number on the Hundred's Chart.</p>
<p>Paul's Number</p>	<p>Paul's Number</p>
<p>The difference of the digits in Paul's number is three.</p> <p>Help your group find Paul's number on the Hundred's Chart.</p>	<p>Paul's number is not a multiple of three, five, or seven.</p> <p>Help your group find Paul's number on the Hundred's Chart.</p>
<p>Paul's Number</p>	<p>Paul's Number</p>
<p>Paul's number is less than fifty.</p> <p>Help your group find Paul's number on the Hundred's Chart.</p>	<p>The sum of the digits in Paul's number is eleven.</p> <p>Help your group find Paul's number on the Hundred's Chart.</p>

<p>Kelly's Number</p>	<p>Kelly's Number</p>
<p>Kelly's number is a multiple of three.</p> <p>Help your group find Kelly's number on the Hundred's Chart.</p>	<p>The sum of the digits of Kelly's number is even.</p> <p>Help your group find Kelly's number on the Hundred's Chart.</p>
<p>Kelly's Number</p>	<p>Kelly's Number</p>
<p>Kelly's number is the largest number on the chart that fits all of the other clues.</p> <p>Help your group find Kelly's number on the Hundred's Chart.</p>	<p>Kelly's number is a multiple of five.</p> <p>Help your group find Kelly's number on the Hundred's Chart.</p>
<p>Kelly's Number</p>	<p>Kelly's Number</p>
<p>When you multiply the digits of Kelly's number together, you get an odd number.</p> <p>Help your group find Kelly's number on the Hundred's Chart.</p>	<p>Kelly's number is larger than 50.</p> <p>Help your group find Kelly's number on the Hundred's Chart.</p>

Multiplication Clusters

Sets A and B

After you solve each cluster, write about how you solved it. Tell how you used the answer for one problem to help you find the answer to another problem.

Set A

$$\begin{aligned}5 \times 3 &= \\5 \times 10 &= \\10 \times 3 &= \\30 \times 5 &= \\50 \times 3 &= \\55 \times 3 &= \end{aligned}$$

Set B

$$\begin{aligned}2 \times 5 &= \\3 \times 5 &= \\10 \times 5 &= \\30 \times 5 &= \\32 \times 5 &= \end{aligned}$$

Multiplication Clusters

Sets C and D

After you solve each cluster, write about how you solved it. Tell how you used the answer for one problem to help you find the answer to another problem.

Set C

$$5 \times 7 =$$

$$10 \times 7 =$$

$$2 \times 7 =$$

$$20 \times 7 =$$

$$25 \times 7 =$$

Set D

$$3 \times 5 =$$

$$2 \times 5 =$$

$$10 \times 5 =$$

$$20 \times 5 =$$

$$23 \times 5 =$$

Multiplication Clusters

Sets E and F

After you solve each cluster, write about how you solved it. Tell how you used the answer for one problem to help you find the answer to another problem.

Set E

$$3 \times 6 =$$

$$3 \times 3 =$$

$$3 \times 10 =$$

$$6 \times 10 =$$

$$3 \times 60 =$$

$$63 \times 3 =$$

Set F

$$2 \times 5 =$$

$$2 \times 4 =$$

$$2 \times 10 =$$

$$10 \times 5 =$$

$$2 \times 50 =$$

$$2 \times 54 =$$

Multiplication Clusters

Sets G and H

After you solve each cluster, write about how you solved it. Tell how you used the answer for one problem to help you find the answer to another problem.

Set G

$$7 \times 2 =$$

$$3 \times 2 =$$

$$7 \times 10 =$$

$$2 \times 10 =$$

$$7 \times 20 =$$

$$2 \times 73 =$$

Set H

$$5 \times 3 =$$

$$6 \times 2 =$$

$$10 \times 6 =$$

$$6 \times 5 =$$

$$60 \times 5 =$$

$$6 \times 52 =$$

Multiplication Clusters

Sets I and J

After you solve each cluster, write about how you solved it. Tell how you used the answer for one problem to help you find the answer to another problem.

Set I

$$8 \times 2 =$$

$$8 \times 10 =$$

$$20 \times 8 =$$

$$10 \times 2 =$$

$$80 \times 2 =$$

$$81 \times 2 =$$

Set J

$$2 \times 6$$

$$10 \times 6$$

$$3 \times 6$$

$$13 \times 6$$

$$23 \times 6$$

How to Play Multiplication Pairs

Materials

- Set of array cards
- Paper and pencil

Players: 1, 2, or 3

How to Play

1. Spread out all the array cards in front of you. Some should be turned up, showing the dimensions. Others should be turned over to show the total.
2. Choose an array card and put your finger on it. (Don't pick it up until you say the answer.) If the dimensions are showing, you must give the total. If the total is showing, you must say the dimensions of the grid. The shape of the array will help you!

For example: Suppose you pick an array with total 36 showing. The dimensions could be 6×6 , or 9×4 , or 12×3 . You must decide which is right. The shape of the array is a good clue.

3. Turn the card over to check your answer. If your answer is correct, then pick up the card.
4. If you are playing with a partner, take turns choosing and identifying cards. Play until you have picked up all the cards.

While you are playing, make lists for yourself of "pairs that I know" and "pairs that I don't know yet." Keep these lists in your math folder.

How to Play Count and Compare

Materials: Set of array cards

Players: 2 or 3

How to Play

1. If you are playing with a partner, sit across from each other. If three people are playing, sit in a circle.
2. Deal out the array cards with the total sides face down. Players should all have the same number of cards. Set aside any that are left over.
3. Place your cards in a stack in front of you, with the total side face down.
4. Players take the top card from their stacks and place these cards side by side (total sides still face down).
5. Decide which array is largest. You can do this just by looking, or by skip counting by rows to find the total of each. Counting the squares by 1's is not allowed.
6. The player with the largest array takes the cards, after proving that it is the largest.
7. Sometimes arrays of the same size may be played in one turn—like this:

	3	×	4	
	4	×	3	

		2	×	6		
		6	×	2		

When this happens, the players decide together who will get the cards. Once a rule is decided, it cannot be changed until the game is over.

8. The game is over when time is up or one player runs out of cards.

How to Play Small Array/Big Array

Materials: Set of array cards

Players: 2

How to Play

1. Deal out 10 array cards to each player with the dimensions side up. Spread out the cards in front of you.
2. Spread out 6 more cards, dimensions side up, in the center of the table. Place the remaining cards in a deck in the center of the table.
3. The goal is to make a “match” by covering a big array with two or three smaller arrays. Players take turns.
4. From your smaller arrays, choose one that matches one dimension of a big array in the center of the table.
5. If none of your array cards matches, you can choose a card that matches a dimension of the big array from the center of the table. Or you can pick the top card from the deck and play it if you can.
6. If you use an array from the center of the table to cover another array, you can either replace it with a card from the deck, or discard one of your array cards. There should always be 6 cards in the middle.
7. When you cover a big array, you can collect the “match.” While playing, keep a list of the dimensions of the large array and the smaller arrays:
$$\begin{array}{r} 7 \times 6 = 3 \times 6 + 4 \times 6 \\ 42 = 18 + 24 \end{array}$$
8. If you run out of cards, take 4 cards from the deck. The game is over when there are no more cards or no more matches can be made.

Hungry Ants

I

1. Figure out what would happen if 20 ants tried to group themselves into 1 line, 2 lines, 3 lines, and so on up to 10 lines. How many ants would be in each line?

Record your answers like this:

20 Hungry Ants

- 1 line of _____
- 2 lines of _____
- 3 lines of _____
- 4 lines of _____
- 5 lines of _____
- 6 lines of _____
- 7 lines of _____
- 8 lines of _____
- 9 lines of _____
- 10 lines of _____

2. Choose another number of ants and do the activity again.

The Game of Leftovers

You need: A partner

One die

15 Color Tiles

One cup to hold the tiles

Six paper plates or 3-inch paper squares (“plates”)

1. Take turns. On your turn, roll the die, take that number of paper plates or squares, and divide the tiles among them. Keep any leftover tiles.
2. Both players record the math sentence that describes what happened.

For example: $15 \div 4 = 3 R3$

In front of each sentence write the initial of the person who rolled the die.

3. Return the tiles on the plates to the cup before the next player takes a turn.
4. Play until all the tiles are gone. Then figure your scores by counting how many tiles each of you has. The winner is the player with the most leftovers. Add your scores to make sure that they total the 15 tiles you started with.
5. When you finish a game, look at each of your sentences with a remainder of zero (R0). Write on the class chart each sentence with R0 that isn't already posted.

8

MYSTERY NUMBERS

"I'm thinking of a single-digit whole number..."

- 1) The number is odd.
- 2) The number has the greatest value of any single-digit prime number.

9

MYSTERY NUMBERS

"I'm thinking of a single-digit whole number..."

- 1) The number is even.
- 2) The number is a perfect cube.

10

MYSTERY NUMBERS

"I'm thinking of a single-digit whole number..."

- 1) The number is odd.
- 2) The number is composite.

20 Two-Digit Mystery Numbers

Answer Key On Back

1

MYSTERY NUMBERS

"I'm thinking of a two-digit whole number..."

- 1) Both digits are odd and prime.
- 2) The ones digit is four more than the tens digit.

2

MYSTERY NUMBERS

"I'm thinking of a two-digit whole number..."

- 1) The tens digit is neither prime nor composite and has value.
- 2) The ones digit has twice the value of the tens digit.

3

MYSTERY NUMBERS

"I'm thinking of a two-digit whole number..."

- 1) Both digits are odd and prime and less than six.
- 2) The tens digit is two more than the ones digit.

4

MYSTERY NUMBERS

"I'm thinking of a two-digit whole number..."

- 1) The tens digit is a perfect square and has value greater than the ones digit.
- 2) The ones digit is the cube of 2.

5

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The tens digit and the ones digit are consecutive even numbers.
- 2) The tens digit has half the value of the ones digit.

6

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The ones digit has half the value of the tens digit.
- 2) The tens digit is the square of an even number.

7

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The tens digit is a factor of 10 and 15 and is greater than 1.
- 2) The product of the digits is 0.

8

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The ones digit has the greatest value of any single-digit odd number that is also prime.
- 2) The tens digit has the same value as its own perfect square.

9

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The tens digit is even and a perfect cube.
- 2) The ones digit is neither prime nor composite and has value.

10

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The tens digit and the ones digit are consecutive whole numbers.
- 2) The tens digit is neither prime nor composite and has value.

11

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The ones digit is one greater than the tens digit.
- 2) Both digits are prime and factors of 6.

12

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The tens digit has value four times that of the only even number that is also prime.
- 2) The ones digit has value equal to the value of the tens digit.

13

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The tens digit has one-third the value of the ones digit.
- 2) Both digits are odd and have value greater than 1.

14

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The tens digit has the least value of any prime number that is also odd.
- 2) The ones digit has the least value of any even number.

15

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The tens digit is neither prime nor composite and has value.
- 2) The ones digit is neither prime nor composite and has no value.

16

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) Both digits are perfect squares.
- 2) The sum of the digits is 18.

17

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The tens digit has the least value of any number that is odd and prime.
- 2) The ones digit has four times the value of a number that is neither prime nor composite and has value.

18

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

- 1) The ones digit is a placeholder.
- 2) The tens digit is prime and even.

19

**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

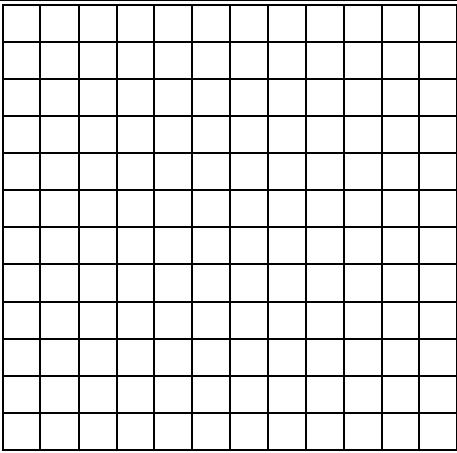
- 1) The tens digit is the only single-digit number that is odd and composite.
- 2) The ones digit is the only number that is even and prime.

20

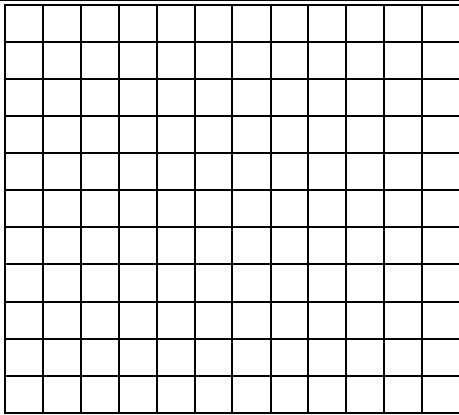
**MYSTERY
NUMBERS**

"I'm thinking of a two-digit whole number..."

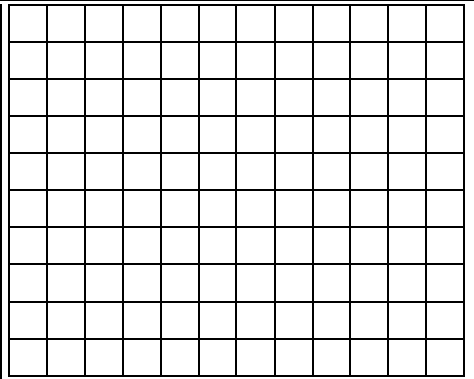
- 1) The tens digit is the first in the series of prime numbers that are also odd.
- 2) The ones digit has one-third the value of the only single-digit number that is odd and composite.



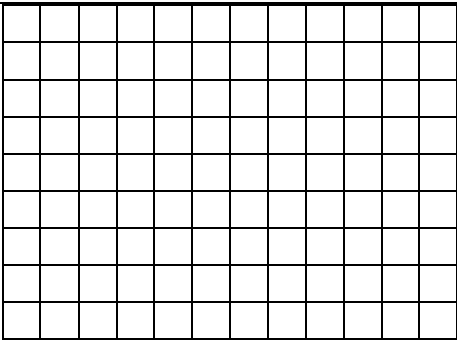
Array Cards
12 X 12



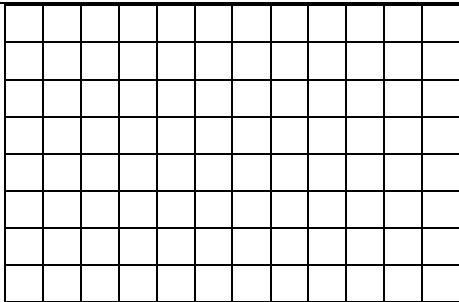
Array Cards
12 X 11



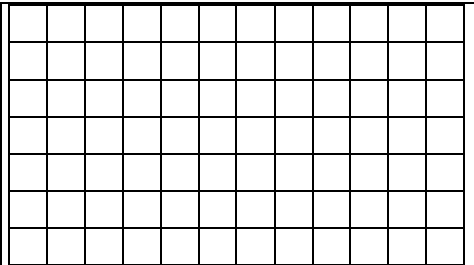
Array Cards
12 X 10



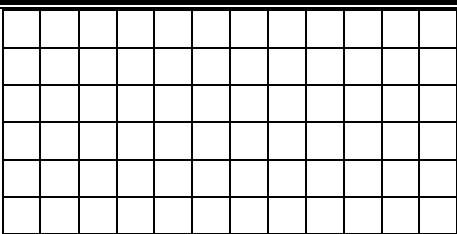
Array Cards
12 X 9



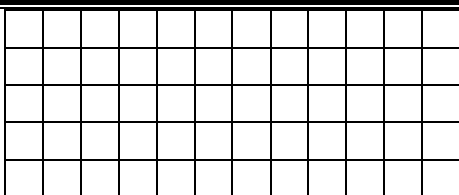
Array Cards
12 X 8



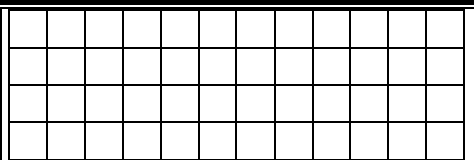
Array Cards
12 X 7



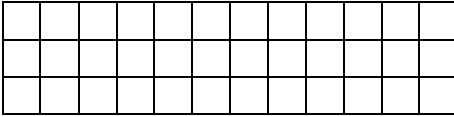
Array Cards
12 X 6



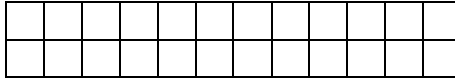
Array Cards
12 X 5



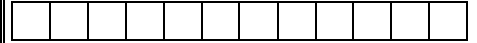
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12 X 4



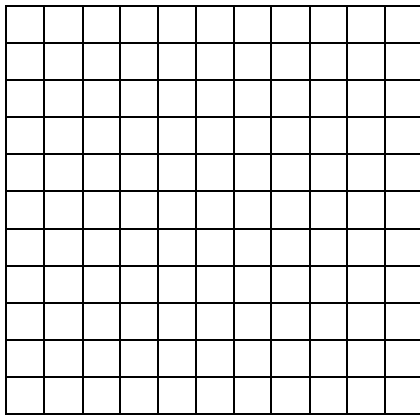
Array Cards
 12×3



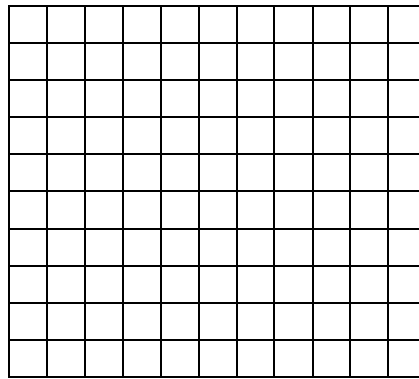
Array Cards
 12×2



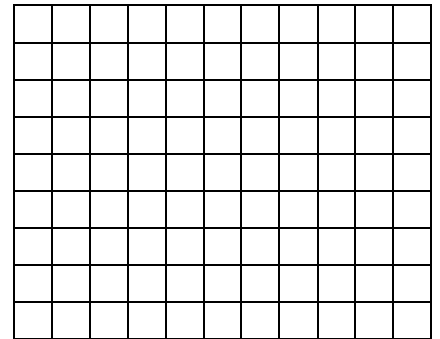
Array Cards
 12×1



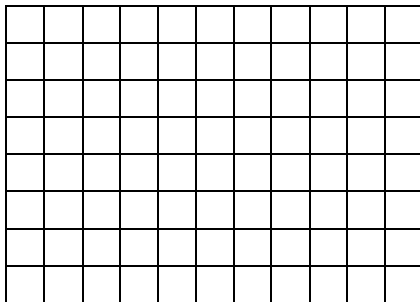
Array Cards
 11×11



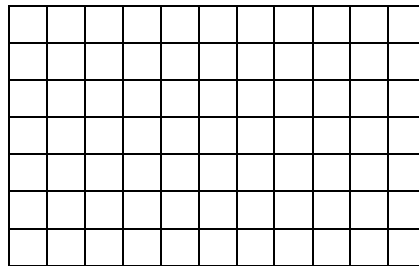
Array Cards
 11×10



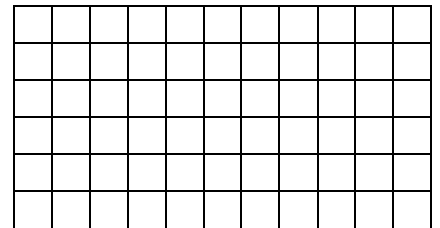
Array Cards
 11×9



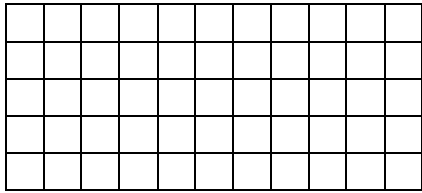
Array Cards
 11×8



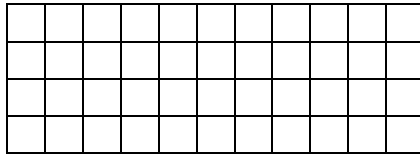
Array Cards
 11×7



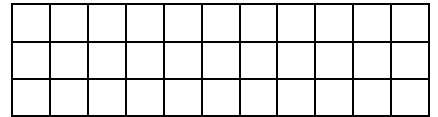
Array Cards
 11×6



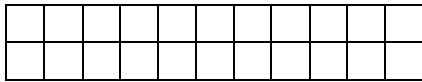
Array Cards
11 X 5



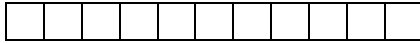
Array Cards
11 X 4



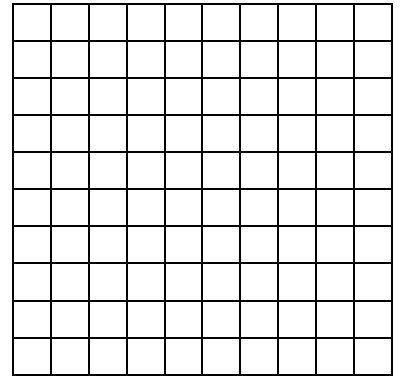
Array Cards
11 X 3



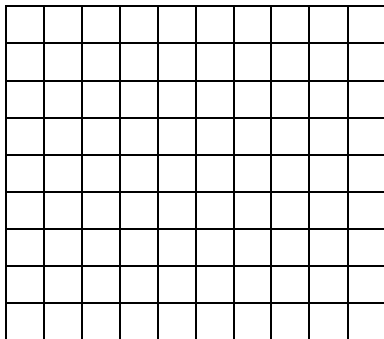
Array Cards
11 X 2



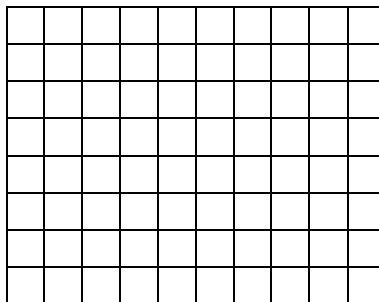
Array Cards
11 X 1



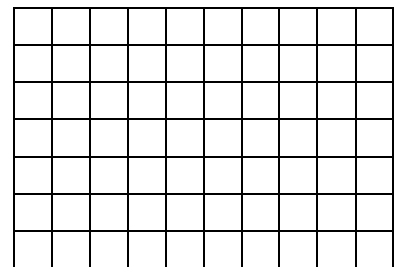
Array Cards
10 X 10



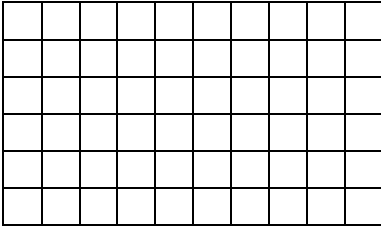
Array Cards
10 X 9



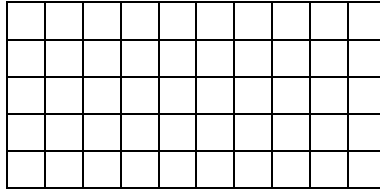
Array Cards
10 X 8



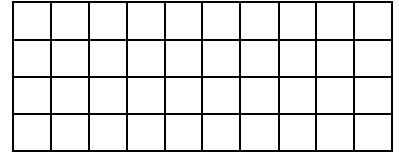
Array Cards
10 X 7



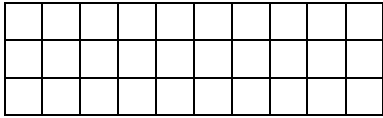
Array Cards
 10×6



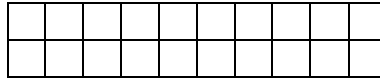
Array Cards
 10×5



Array Cards
 10×4



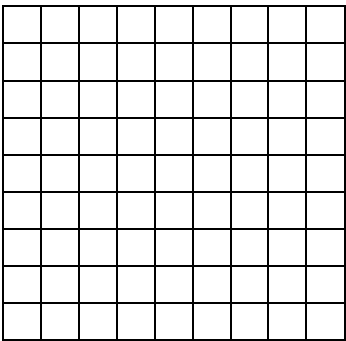
Array Cards
 10×3



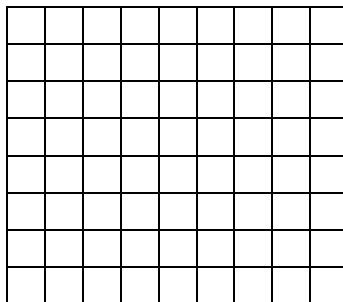
Array Cards
 10×2



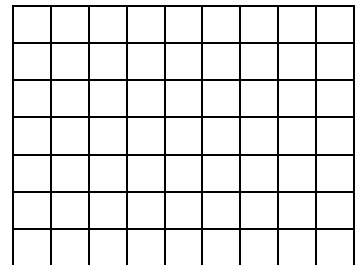
Array Cards
 10×1



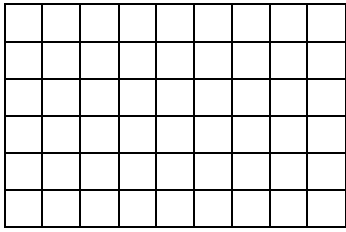
Array Cards
 9×9



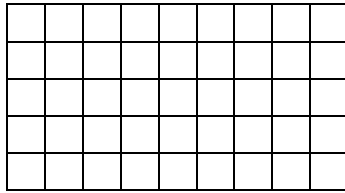
Array Cards
 9×8



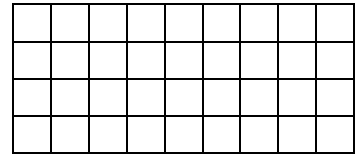
Array Cards
 9×7



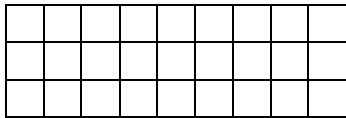
Array Cards
 9×6



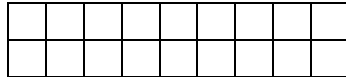
Array Cards
 9×5



Array Cards
 9×4



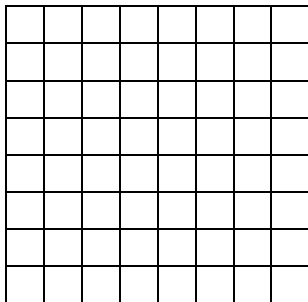
Array Cards
 9×3



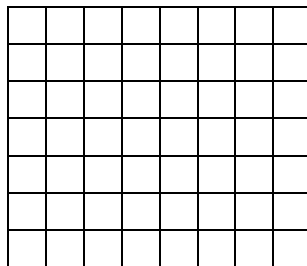
Array Cards
 9×2



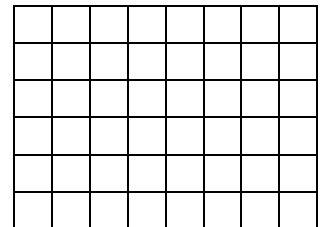
Array Cards
 9×1



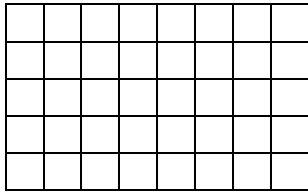
Array Cards
 8×8



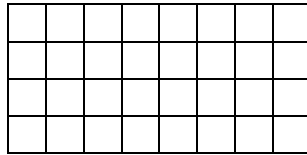
Array Cards
 8×7



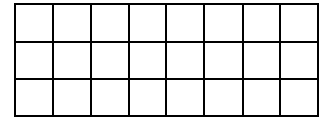
Array Cards
 8×6



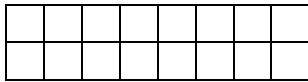
Array Cards
 8×5



Array Cards
 8×4



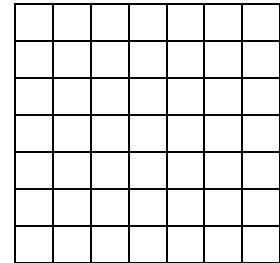
Array Cards
 8×3



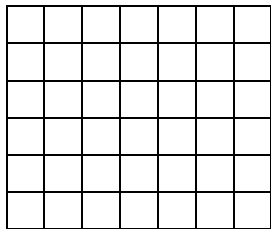
Array Cards
 8×2



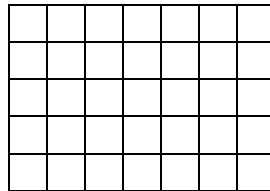
Array Cards
 8×1



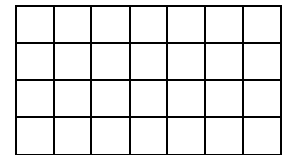
Array Cards
 7×7



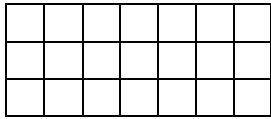
Array Cards
 7×6



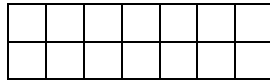
Array Cards
 7×5



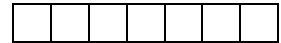
Array Cards
 7×4



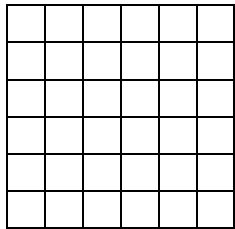
Array Cards
7 X 3



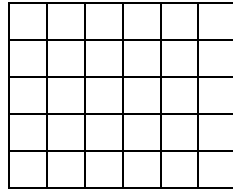
Array Cards
7 X 2



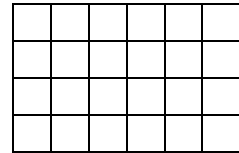
Array Cards
7 X 1



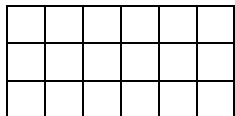
Array Cards
6 X 6



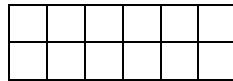
Array Cards
6 X 5



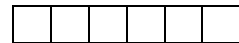
Array Cards
6 X 4



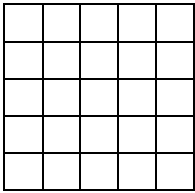
Array Cards
6 X 3



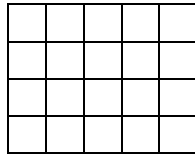
Array Cards
6 X 2



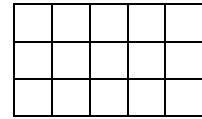
Array Cards
6 X 1



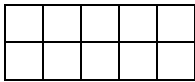
Array Cards
5 X 5



Array Cards
5 X 4



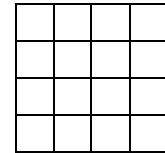
Array Cards
5 X 3



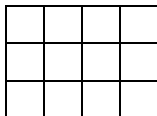
Array Cards
5 X 2



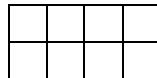
Array Cards
5 X 1



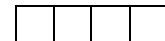
Array Cards
4 X 4



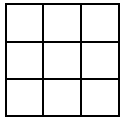
Array Cards
4 X 3



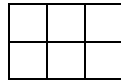
Array Cards
4 X 2



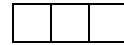
Array Cards
4 X 1



Array Cards
3 X 3



Array Cards
3 X 2



Array Cards
3 X 1



Array Cards
2 X 2



Array Cards
2 X 1



Array Cards
1 X 1