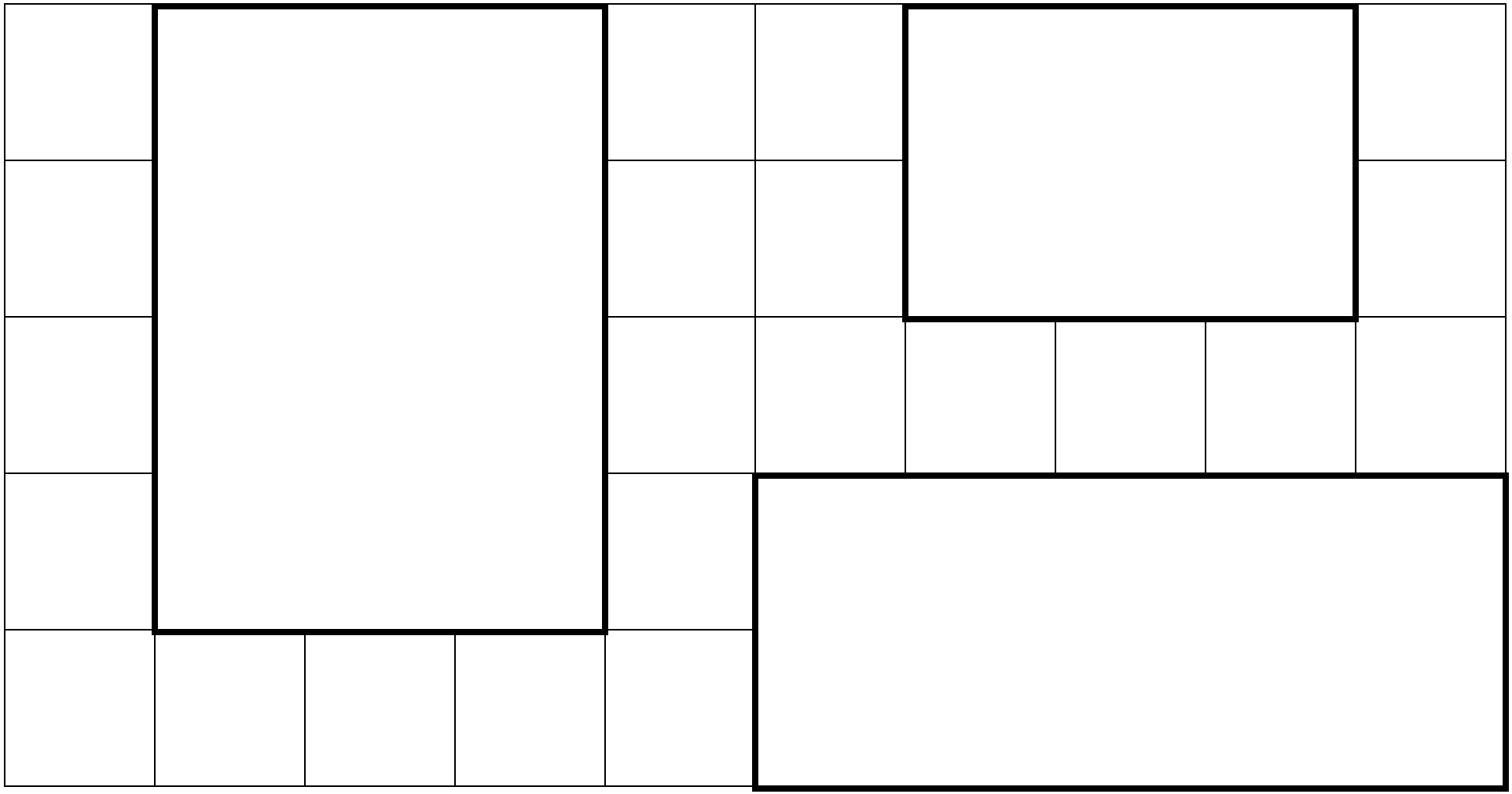
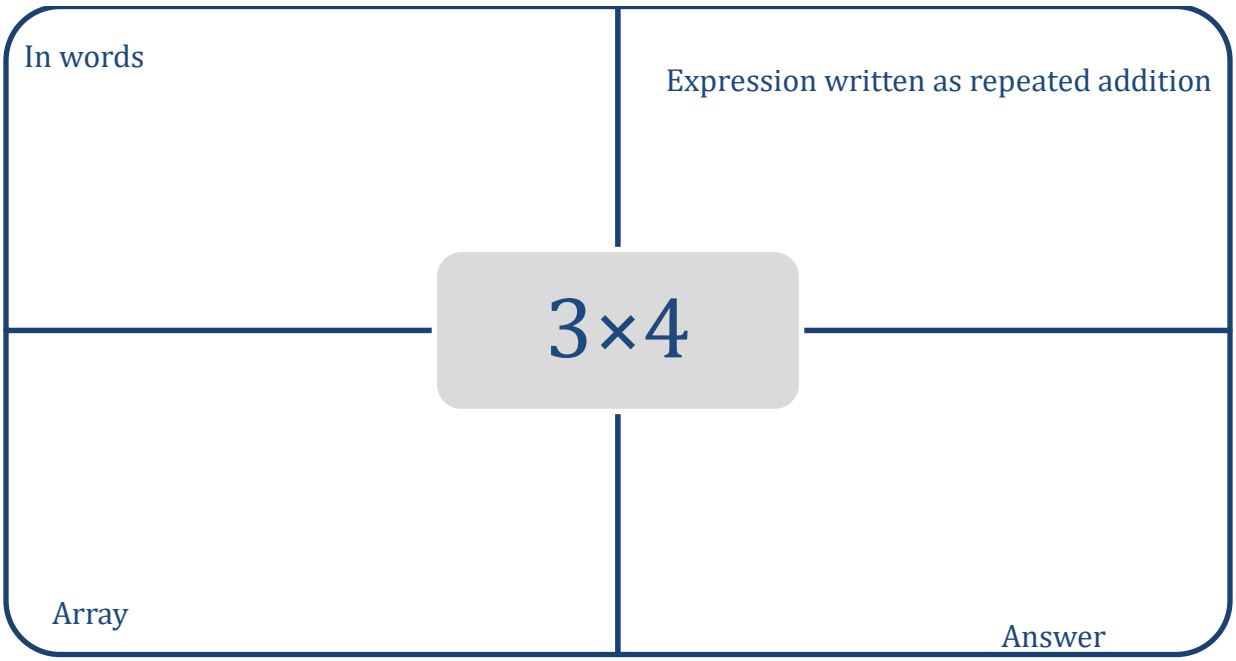
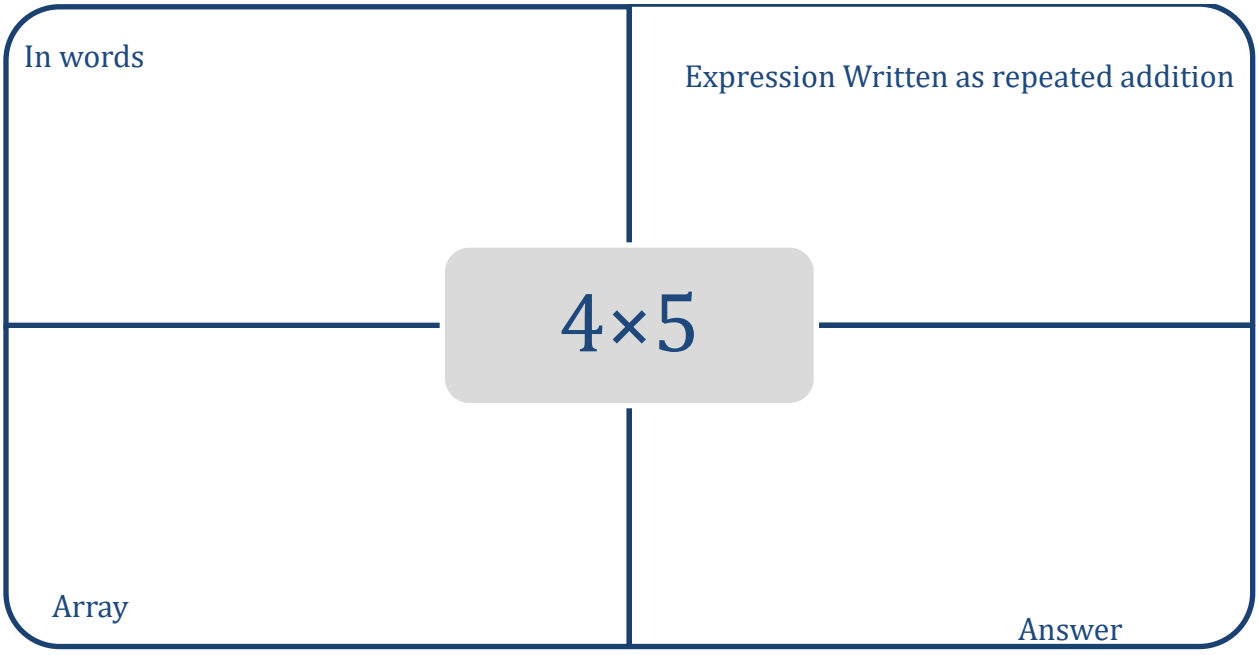
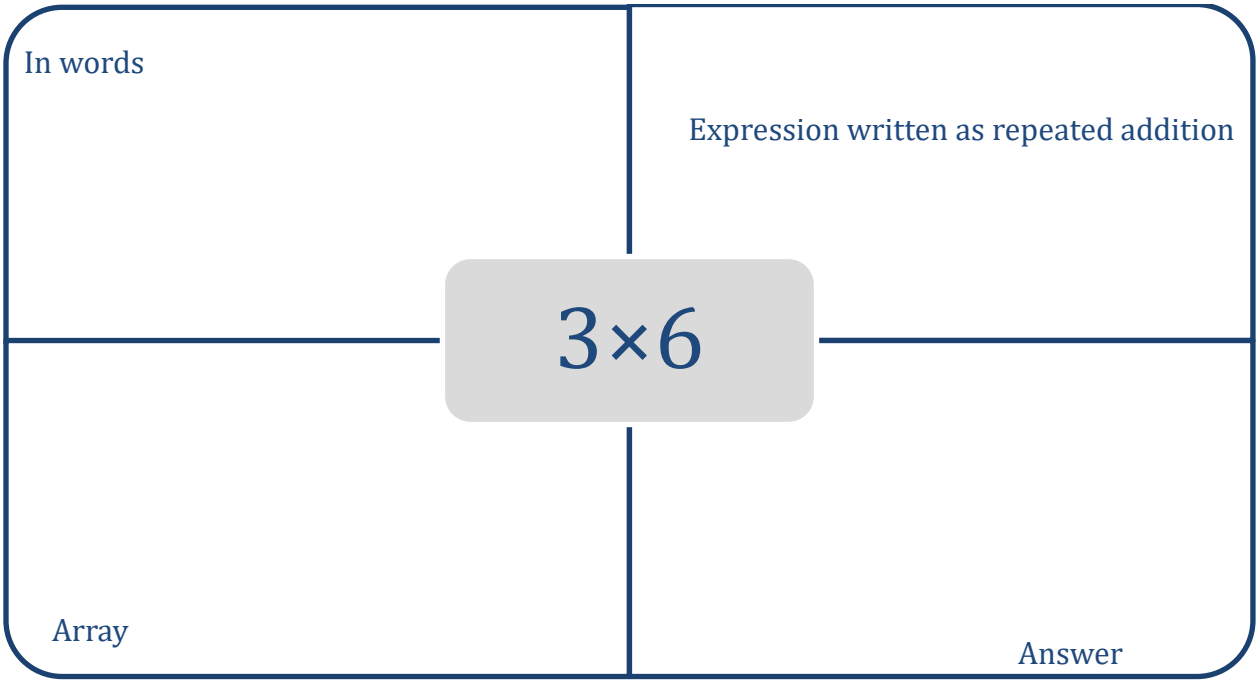
Name: _____ Class: _____ Date:_____

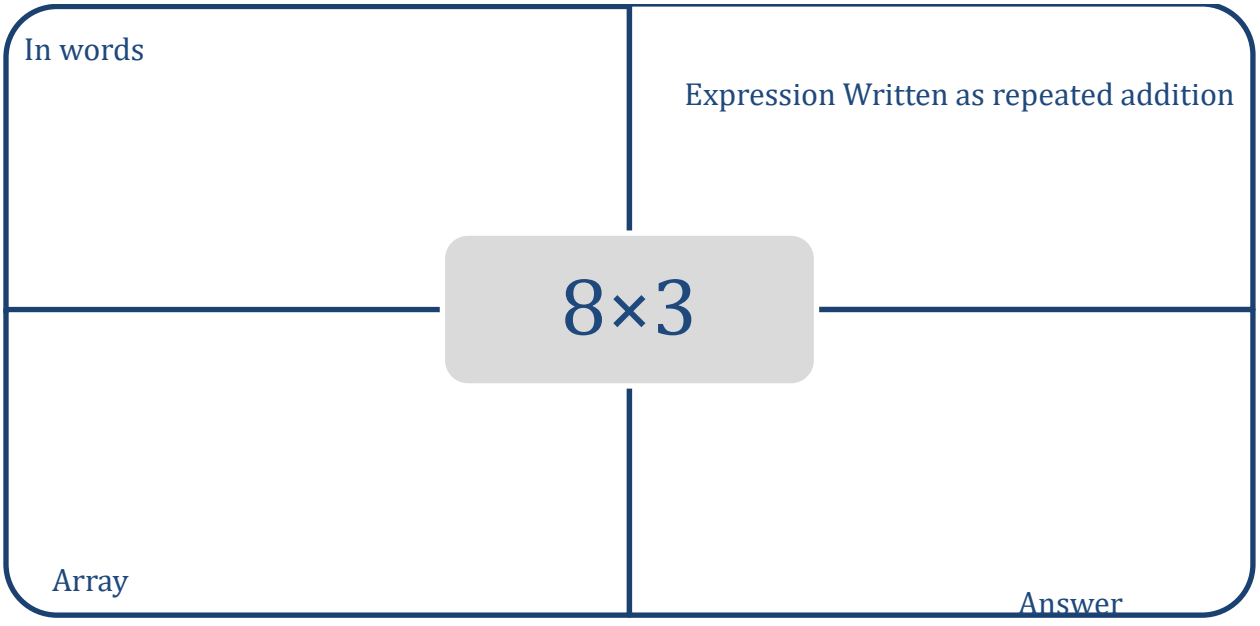
**Directions:** Find the area of each quadrilateral.



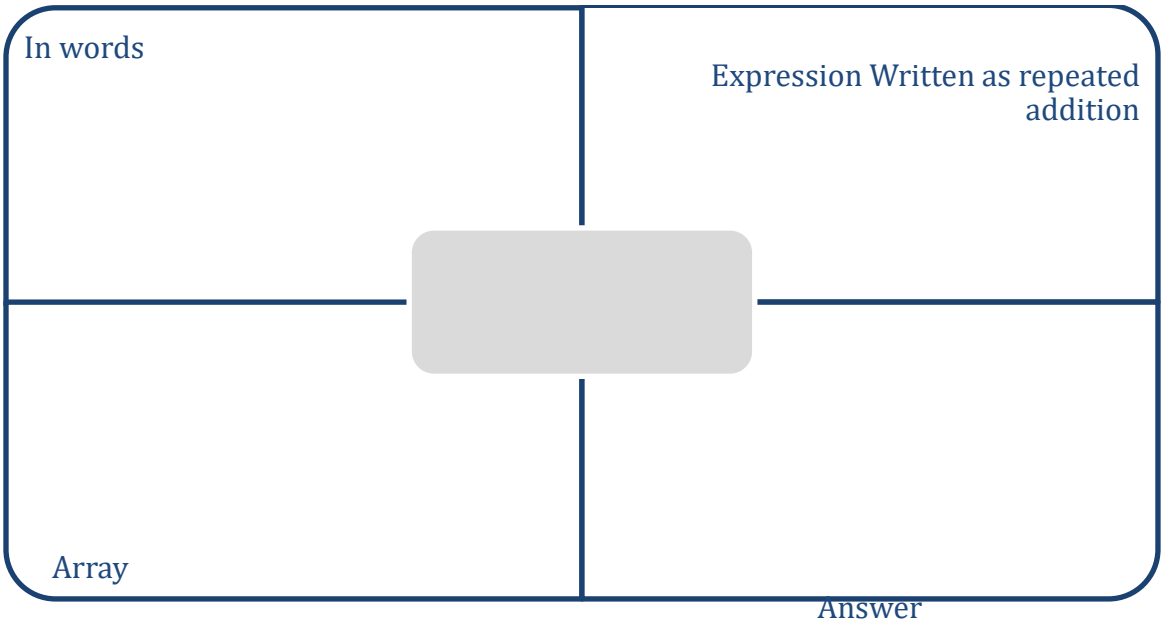

In words
Expression written as repeated addition
3×4
Array
Answer

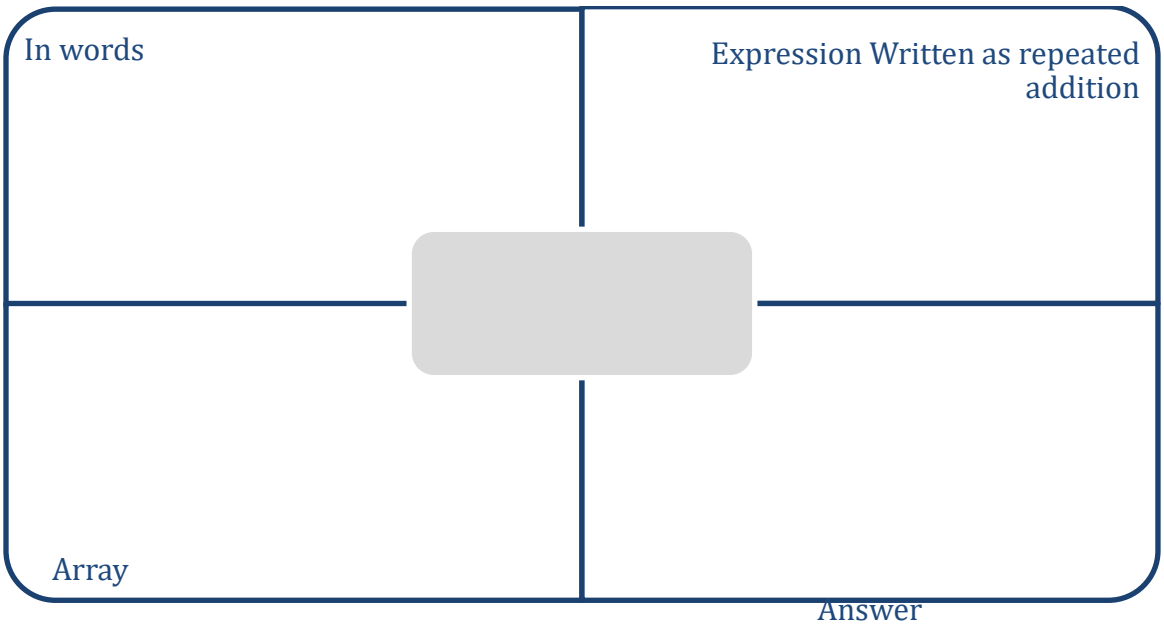

In words
Expression Written as repeated addition
4×5
Array
Answer


In words
Expression written as repeated addition
3×6
Array
Answer


In words
Expression Written as repeated addition
8×3
Array
Answer

Now create your own multiplication problems:



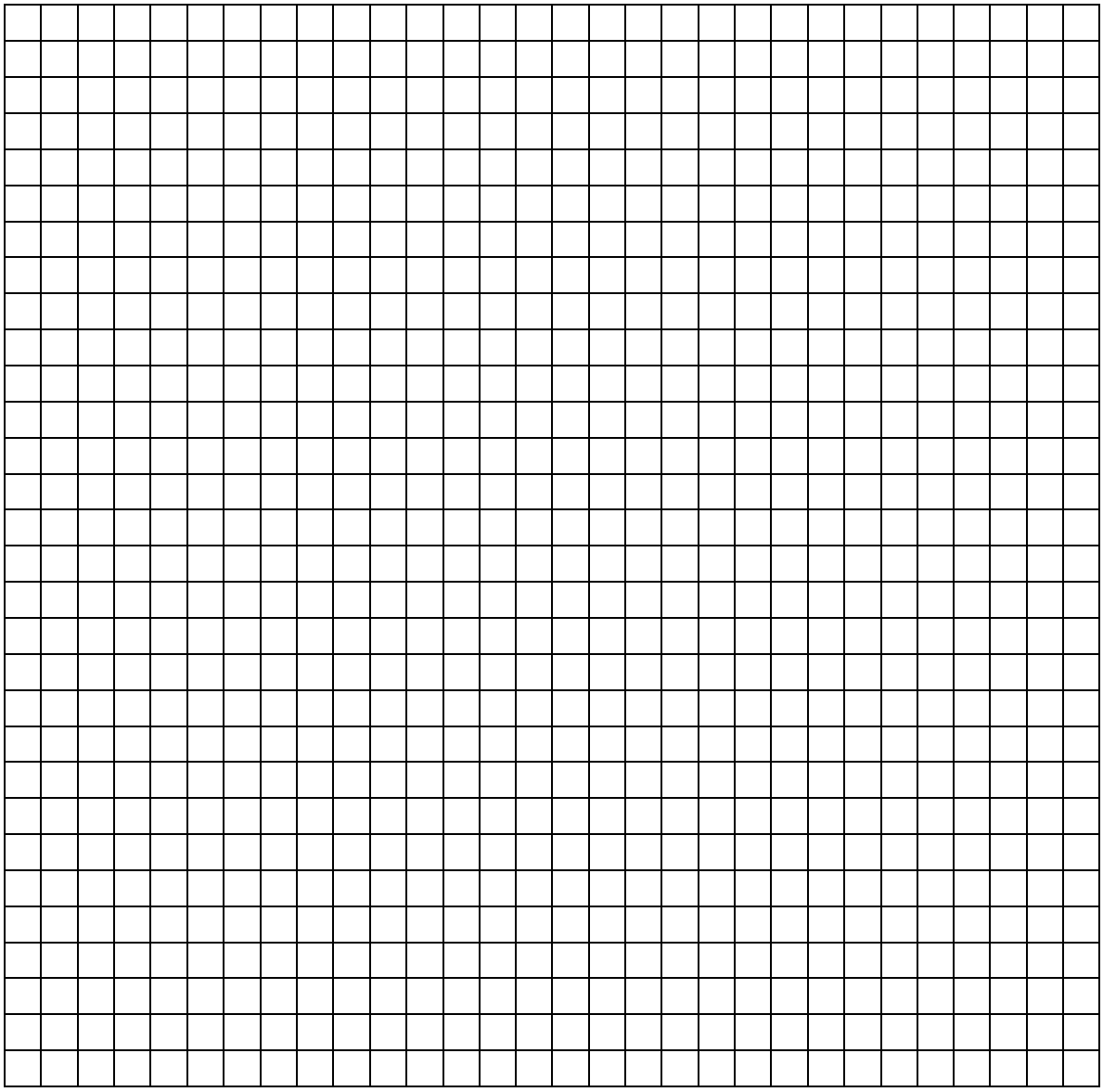
Name: _____ Class: _____ Date:_____

# Times Table

| X | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| **2** | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| **3** | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 |
| **4** | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 |
| **5** | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
| **6** | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 |
| **7** | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70 |
| **8** | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 |
| **9** | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 | 90 |
| **10** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

| X | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | | | | | | | | | | |

# The Array Game Recording Sheet

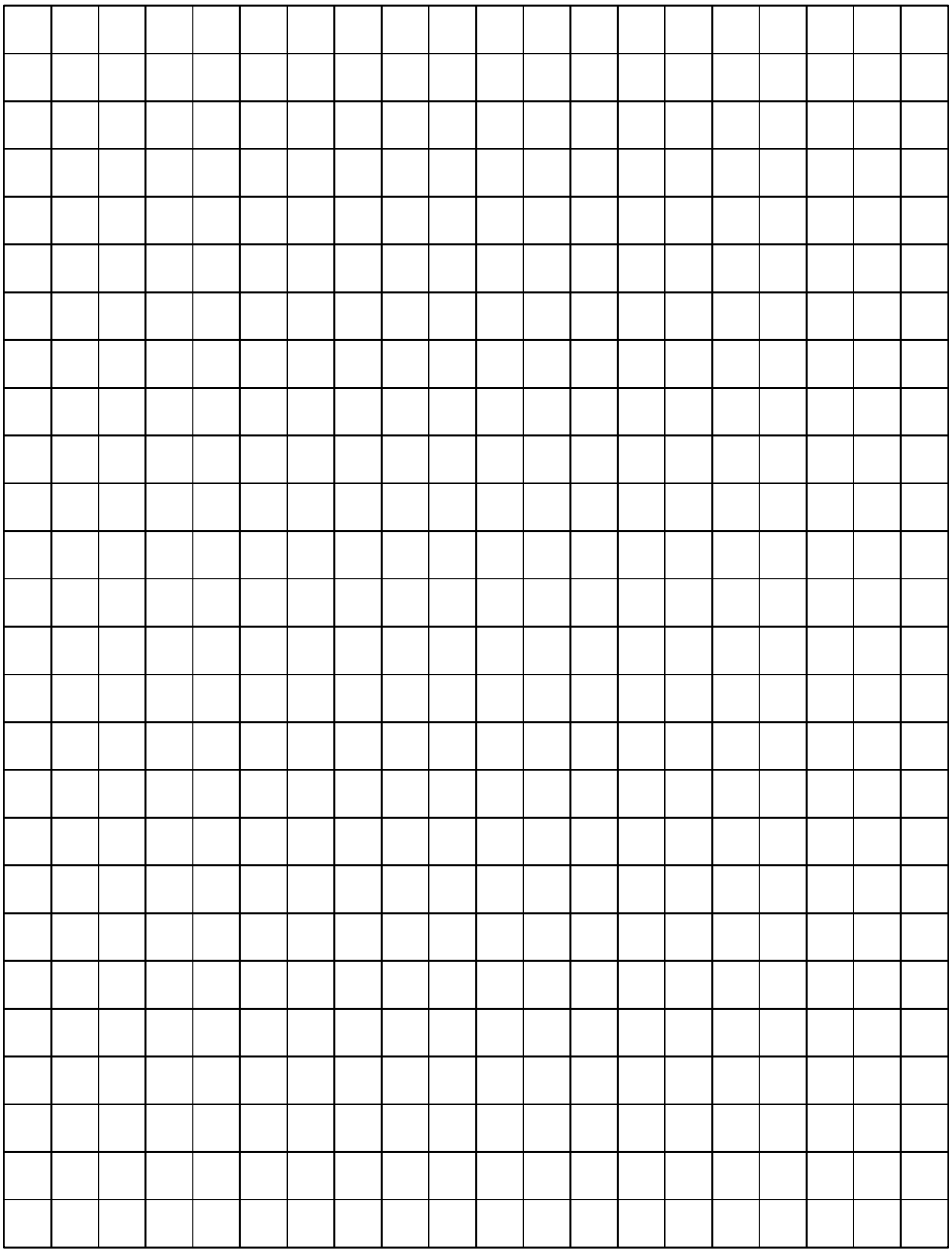


Name: _____ Class: _____ Date:_____

# How to Play the Array Game

1. Students play in pairs, each with their own grid.
2. When it is your turn, roll the dice.
3. Color in an area on the grid indicated by the dice. For example, if they roll a 2 and a 3, they color in any 2x3 rectangle.
4. Write the number of squares in the rectangle to indicate the product of the two sides.

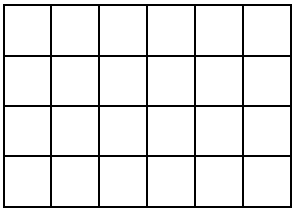
The first player to color in all the squares in their grid wins!



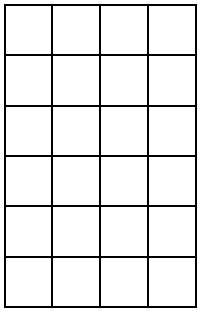
| Targets | Needs Support | Approaching Target | Meets Target | Exceeds Target |
|---|---|---|---|---|
| **Guidance on Levels** | Student is not reaching lowest level of target. They might be doing *something*, but it's not the target. | Student is close to meeting the target. | Student meets the target, showing proficiency. . | Student performance exceeds the target. It's important that students have the opportunity to see and reach for this level across the unit. |
| **I can find the perimeter of a rectangle** | Student cannot independently calculate the perimeter of a rectangles and requires significant teacher support, or confuses area and perimeter,<br><br>Student still needs to count the perimeter unit by unit to arrive at a final solution. | The student can find the perimeter of rectangles only by counting units one-by-one, does not utilize an efficient strategy for computing the sum. | Students can successfully compute the perimeter of rectangles by adding the sides. | Students can compute the perimeter of rectangles by applying the formula P=2L+2W |
| **I can find the area of a rectangle** | Student counts unit squares one-by-one to calculate the area of a rectangles, but does not arrive at the correct sum, or cannot determine a strategy to compute area without significant teacher support, or confuses area and perimeter | Student counts unit squares one-by-one or uses repeated addition to find the total area to calculate the area of a rectangles and arrives at a correct total. | Students can successfully compute the area of rectangles by multiplying the sides. | Students can compute the area of rectangles by applying the formula A=LxW |
| **I can compare the area and perimeter of a rectangle** | Even with teacher assistance students don't demonstrate understanding or students require substantial teacher support to determine a relationship between area and perimeter. | Student responses demonstrate the understanding of only one or two key relationships between area and perimeter. | Student responses demonstrate the understanding of the three key relationships between area and perimeter:<br>• Area can change when perimeter stays the same<br>• Perimeter can change when area stays the same<br>• Area is maximized & perimeter is minimized as a rectangle approaches a square. | Students can extend their understanding of the relationship between area and perimeter by describing the relationship as it exists between the difference of the side lengths (e.g. As the differences between the dimensions of a rectangle get smaller for a fixed perimeter, the area of the rectangle increases.) |

# Area and Perimeter Investigation

1) Below are two rectangles that have an area of 24 square units.



Rectangle # 1



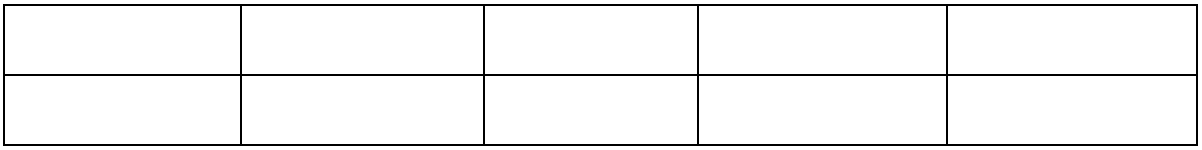
Rectangle #2

- Draw rectangles with an area of 24 on a sheet of graph paper. Draw as many as you can.
- Compare your rectangles with your partner. Did they draw any that you didn't?

Use the rectangles you drew to record your results in the table below. For each rectangle:

- Find the length and width
- Find the perimeter
- Find the area

| Rectangle | Length | Width | Perimeter | Area |
|---|---|---|---|---|
| #1 | 6 | 4 | 20 | 24 |
| | | | | |
| | | | | |

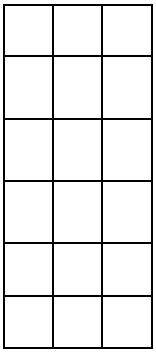


- Which rectangle has the largest perimeter?

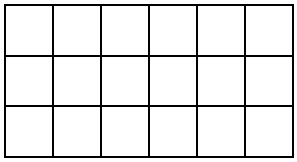
- Which rectangle has the smallest perimeter?

- What do you notice about the factors of the rectangle (lengths & widths)?

2) Below are two rectangles that have an area of 18 square units.



Rectangle # 1



Rectangle # 2

- Draw rectangles with an area of 18 on a sheet of graph paper. Draw as many as you can.
- Compare your rectangles with your partner. Did they draw any that you didn't?

Use the rectangles you drew to record your results in the table below. For each rectangle:

- Find the length and width
- Find the perimeter
- Find the area

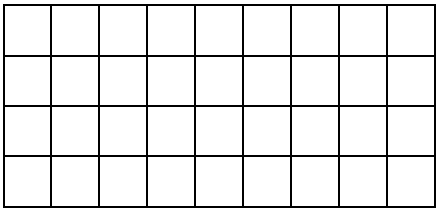
| Rectangle | Length | Width | Perimeter | Area |
|---|---|---|---|---|
| #1 | 6 | 3 | 18 | 18 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

- Which rectangle has the largest perimeter?

- Which rectangle has the smallest perimeter?

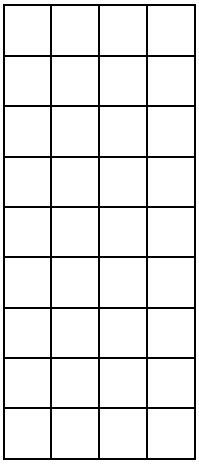
- What do you notice about the factors of the rectangle (lengths & widths)?

3) Below are two rectangles that have an area of 36 square units



Rectangle # 1

Rectangle #2



- Draw rectangles with an area of 36 on a sheet of graph paper. Draw as many as you can.
- Compare your rectangles with your partner. Did they draw any that you didn't?

Use the rectangles you drew to record your results in the table below. For each rectangle:

- Find the length and width
- Find the perimeter
- Find the area

| Rectangle | Length | Width | Perimeter | Area |
|---|---|---|---|---|
| #1 | 4 | 9 | 26 | 36 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

- Which rectangle has the largest perimeter?
- Which rectangle has the smallest perimeter?
- What do you notice about the factors of the rectangle (lengths and widths)?