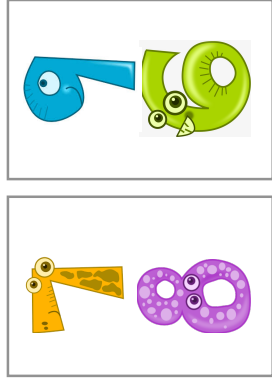


# Think Like a Scientist:

Observe, Research, Contemplate, Compare, Contrast, Apply

\* **WARNING** Before using flashcards to practice, get to know the numbers and the facts.



Identify two facts you do not know. Print flashcards for them.

Examine these facts like a scientist.

Google each number. Also google the answer (sum or product).

Example search: What are some things that come in groups of six?

Search for facts in your home, and in the things you like most.\*

**Contemplate:** Ask good questions:

- Is this fact close to a fact I already know?
- Is there a strategy I can use to recall this fact? (*9s Rule, Doubles + 1*)
- Can I make up a story about this fact using information from my research?
- Can I get ideas from the ready-made Fluency Flaps in the library, or from my friends' flaps?

\* **Facts are all around us. Examples:**

- A cup has eight ounces. A quart has 32 ounces. There are four cups in a quart.
- A week has seven days. February has four weeks (when it's not a leap year). February has 28 days.
- In football, a field goal is worth three points. If you get seven field goals, you score 21 points.
- 12 is a dozen. If you use three eggs in each, you can make four omelets.
- In 1958 our flag had 48 stars. Eight columns, six stars in each column. (Alaska and Hawaii became states in 1959)

**Your printed and folded flashcards open like a book. You can add clues to the inside.**

When practicing, if you do not know the answer, you can open the card and look at one or more of the clues. Draw your own pictures or get them from magazines or online.

**Make an extra copy and tape it to the wall.**

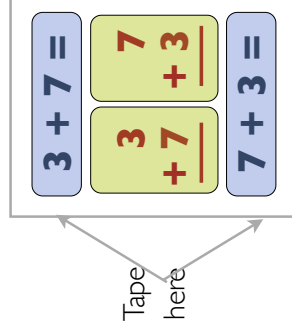
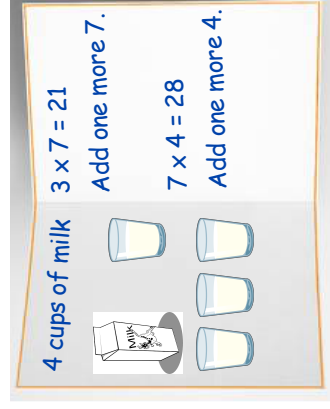
Tape the card on the left side. You can choose to open the card and see the clues, or flip it, and check your answer.

**Making clues and using them will help you understand the fact, and that will help you to remember the answer.**

Put your flaps in places where it's easy to review them often.

Examples: • Where you brush your teeth. • The fridge.

• Your bedroom door. • By your bed.



\* See other Fluency Flaps in The Math Fluency Free Resource Library at [studysmart.com](http://studysmart.com).

# Practice Like an Athlete

- 1) Stay focused. Get good at dealing with distractions.
- 2) Stay positive. Use self talk.
- 3) Be OK with making mistakes. Learn from them.

## Using flashcards

Use flashcards for facts you already understand.

Never count.

Focus on the card.

Think of how you know the fact. Take your time.

If you have a guess, go with it. It's fine if you are not correct.

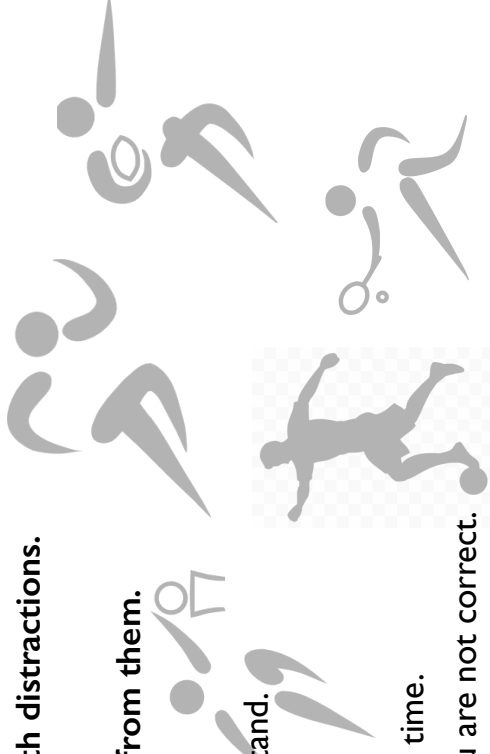
If you have no idea, and you are using Fluency Flaps, look at a hint.

If you were correct, confirm it to yourself. Yes,  $5 + 7 = 12$ . *It's like  $(5 + 5) + 2$ .*

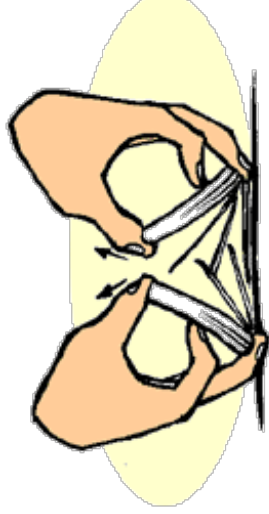
Good self-talk includes: 1) a Yes! 2) Say the question and answer. 3) State how you know.

If your answer was not correct, review your hints and strategies.

If you have not made a Fluency Flap, consider making one for this fact.



When you have gone through all the cards, shuffle and repeat.



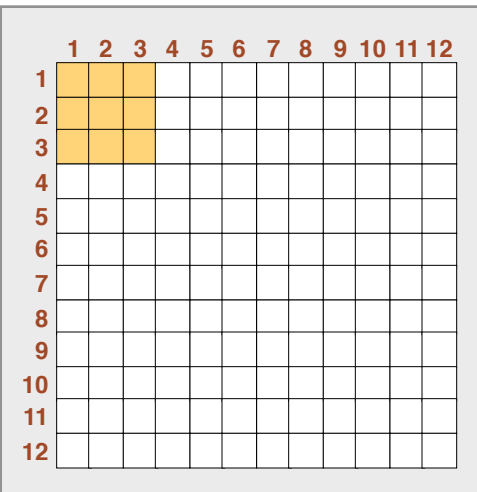
Each time you go through the cards, you learn them better.

## Three Common Mistakes When Using Flashcards

- 1) Counting. Counting prevents you from learning.
- 2) Failure to check the answer. Turn the card over and tap the answer.
- 3) Not taking enough time to think, before answering, and after an incorrect answer.

$3 \times 3 = 9$

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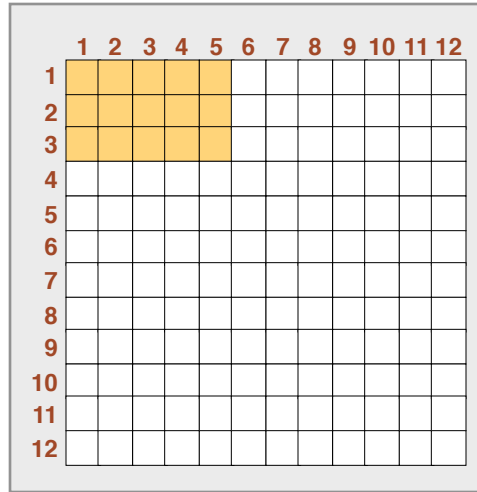
$3 \times 3$

$$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$$

$3 \times 3$

$3 \times 5 = 15$

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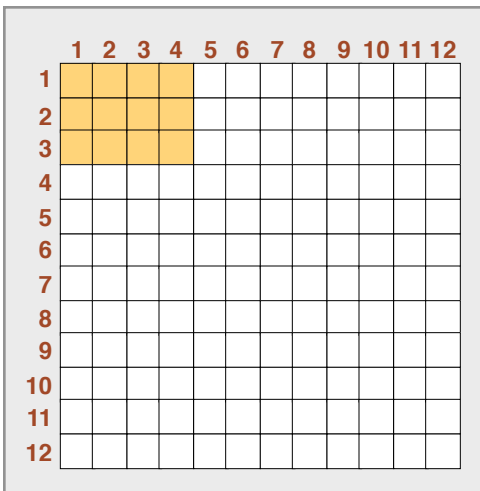
$3 \times 5$

$$\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$$

$5 \times 3$

$3 \times 4 = 12$

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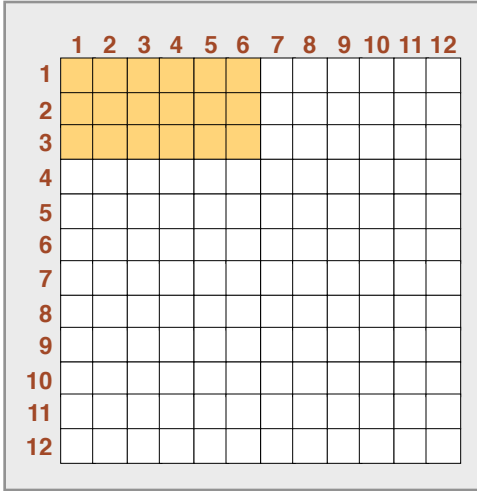
$3 \times 4$

$$\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$$

$4 \times 3$

$3 \times 6 = 18$

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$3 \times 6$

$$\begin{array}{r} 6 \\ \times 3 \\ \hline \end{array}$$

$6 \times 3$

$$3 \times 7 = 21$$

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$$3 \times 7$$

$$3 \times 9 = 27$$

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$$3 \times 9$$

$$\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$$

$$7 \times 3$$

	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

$$\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 9 \\ \hline \end{array}$$

$$9 \times 3$$

$$3 \times 8 = 24$$

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$$3 \times 8$$

$$4 \times 4 = 16$$

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$$4 \times 4$$

$$\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$$

$$8 \times 3$$

	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

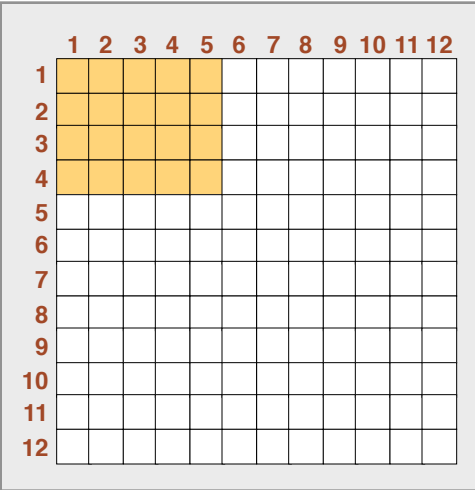
$$\begin{array}{r} 4 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 4 \\ \hline \end{array}$$

$$4 \times 4$$

$$4 \times 5 = 20$$

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$$4 \times 5$$

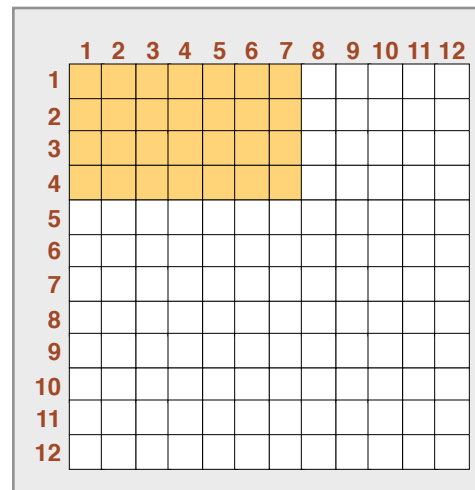
$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$$

$$5 \times 4$$

$$4 \times 7 = 28$$

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$$4 \times 7$$

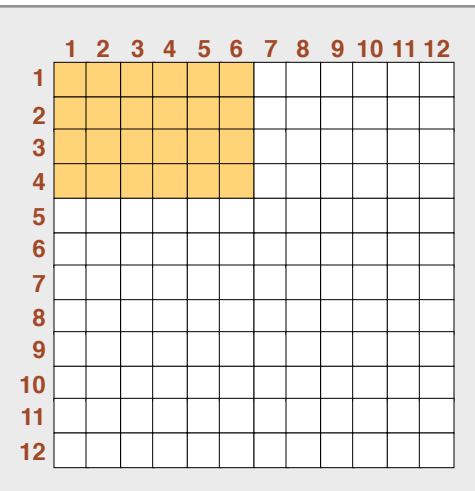
$$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 7 \\ \hline \end{array}$$

$$7 \times 4$$

$$4 \times 6 = 24$$

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$$4 \times 6$$

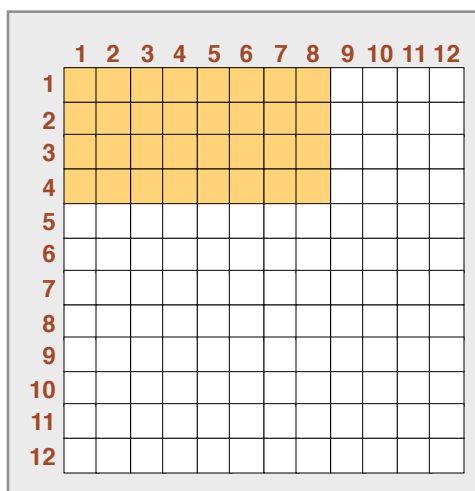
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$$\begin{array}{r} 4 \\ \times 6 \\ \hline \end{array}$$

$$6 \times 4$$

$$4 \times 8 = 32$$

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$$4 \times 8$$

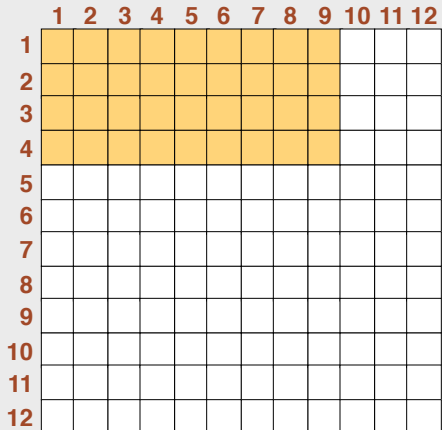
$$\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 8 \\ \hline \end{array}$$

$$8 \times 4$$

$4 \times 9 = 36$

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$4 \times 9$

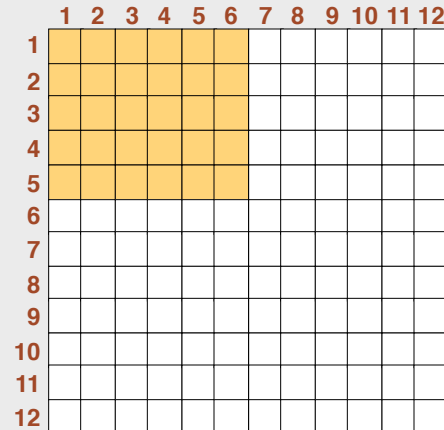
$$\begin{array}{r} 9 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$$

$9 \times 4$

$5 \times 6 = 30$

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$5 \times 6$

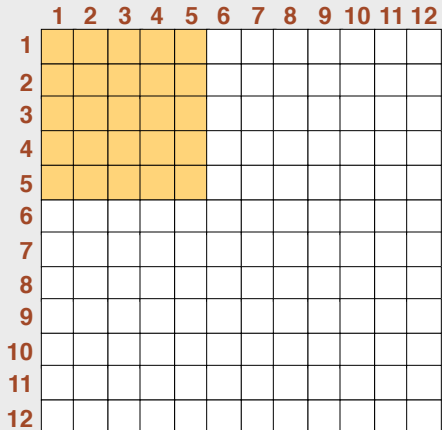
$$\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$$

$6 \times 5$

$5 \times 5 = 25$

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$5 \times 5$

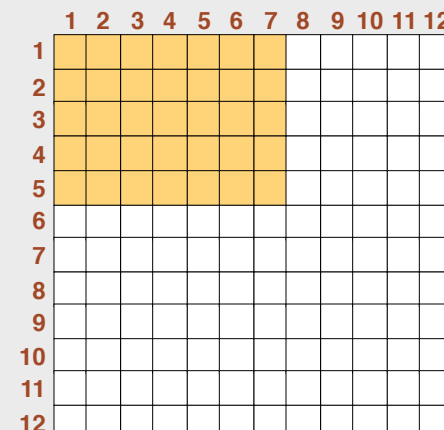
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$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

$5 \times 5$

$5 \times 7 = 35$

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$5 \times 7$

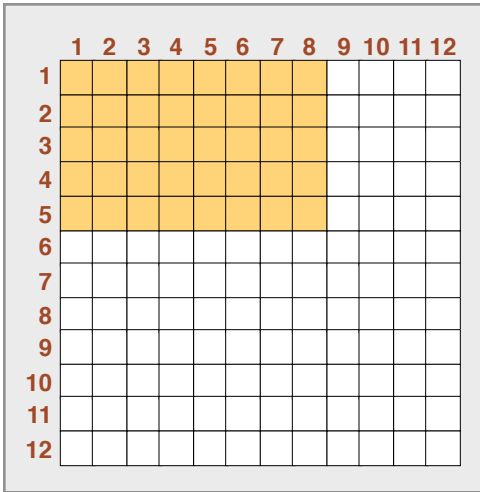
$$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$$

$7 \times 5$

$5 \times 8 = 40$

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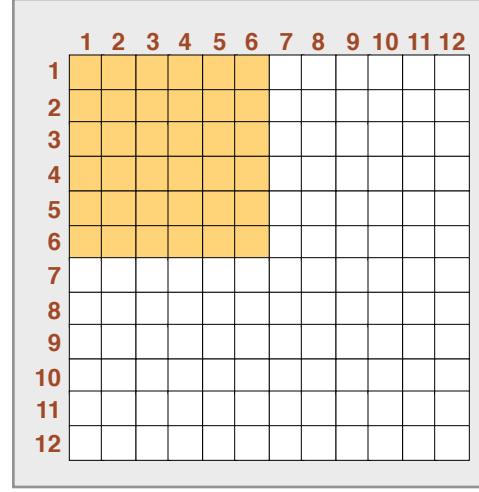
$5 \times 8$

$$\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$$
$$\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$$

$8 \times 5$

$6 \times 6 = 36$

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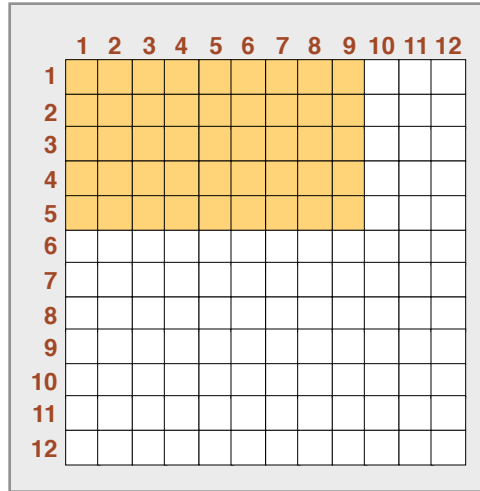
$6 \times 6$

$$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$$
$$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$$

$6 \times 6$

$5 \times 9 = 45$

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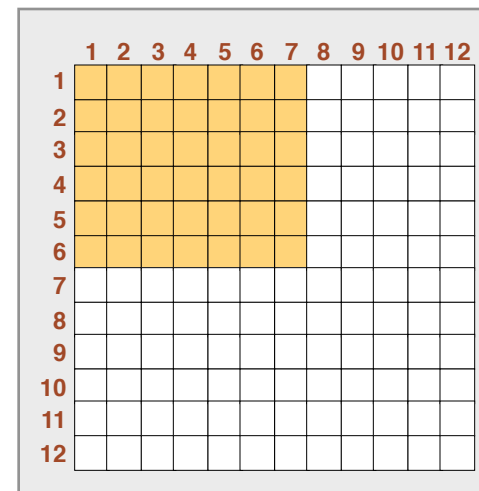
$5 \times 9$

$$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$$
$$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$$

$9 \times 5$

$6 \times 7 = 42$

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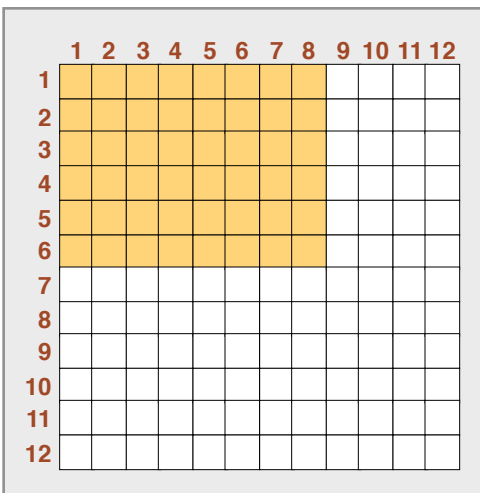
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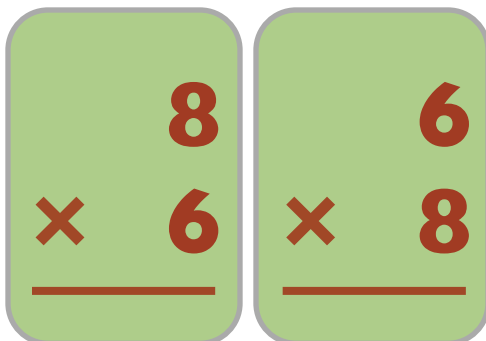
$7 \times 6$

$6 \times 8 = 48$

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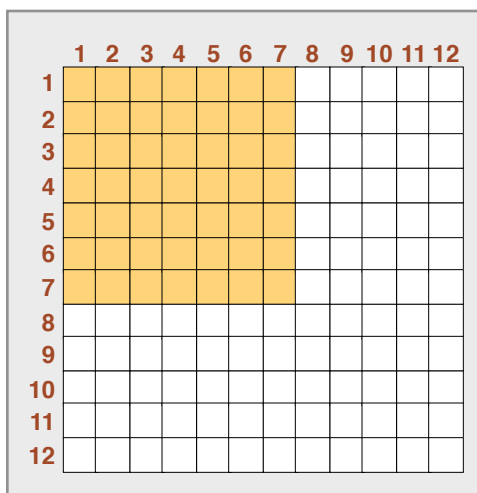
$6 \times 8$



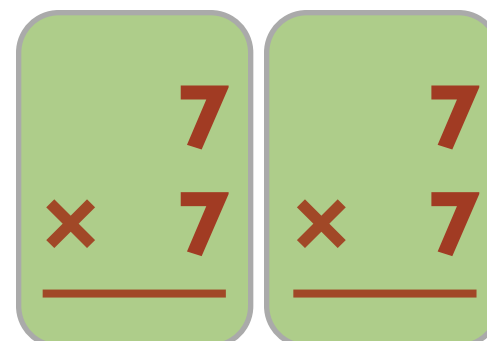
$8 \times 6$

$7 \times 7 = 49$

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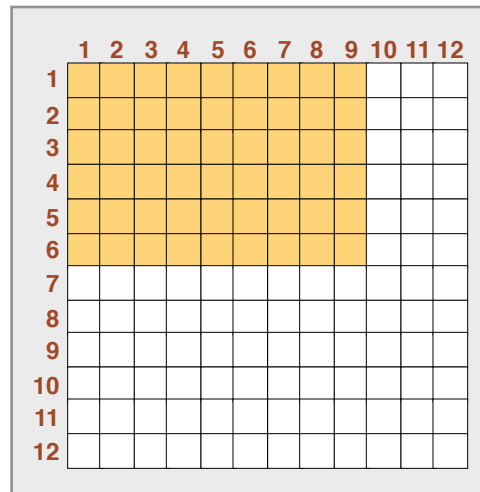
$7 \times 7$



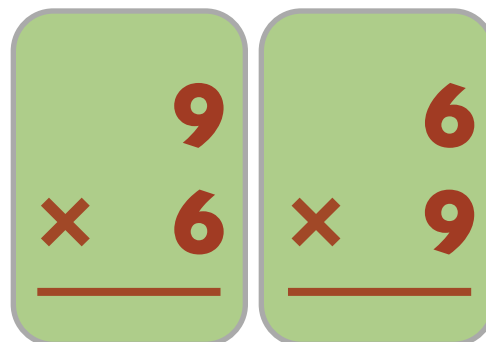
$7 \times 7$

$6 \times 9 = 54$

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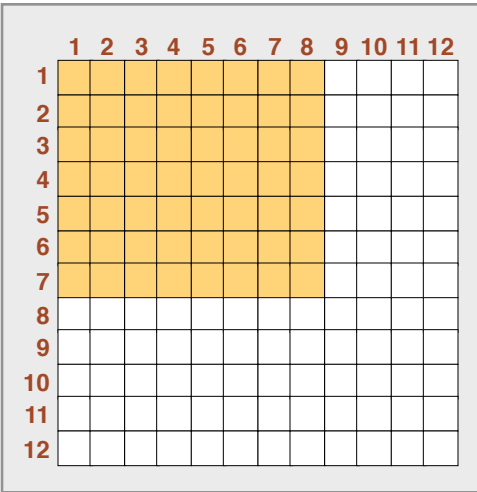
$6 \times 9$



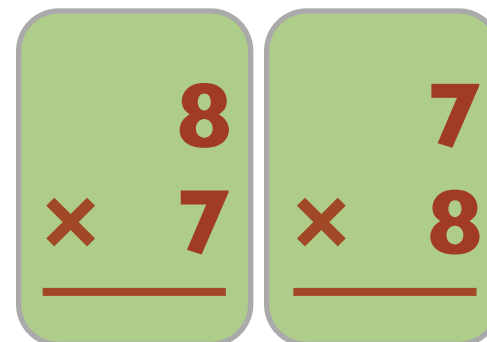
$9 \times 6$

$7 \times 8 = 56$

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$7 \times 8$

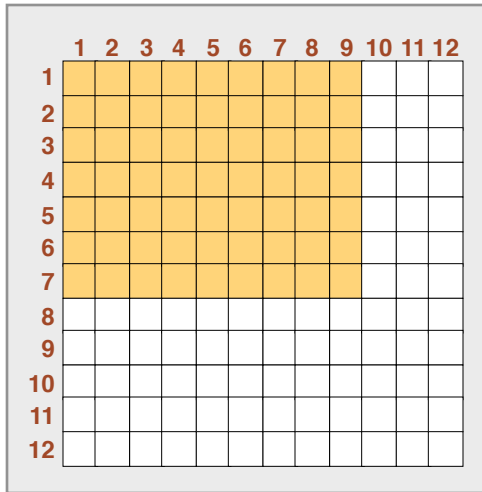


$8 \times 7$

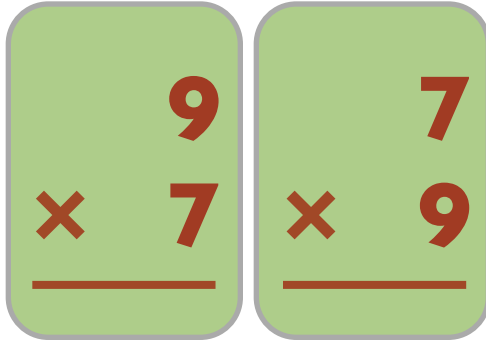


$7 \times 9 = 63$

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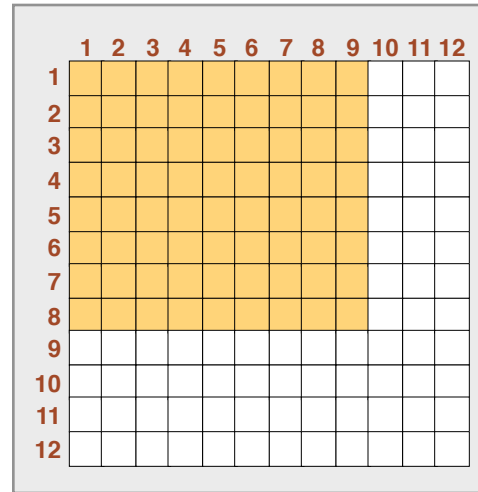
$7 \times 9$



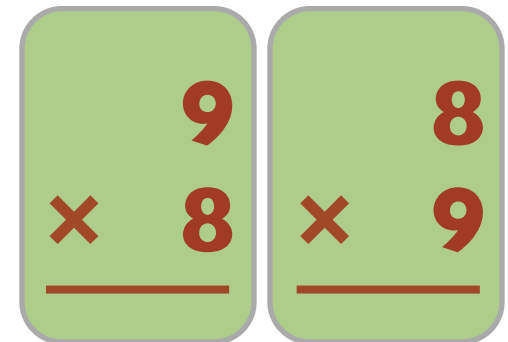
$9 \times 7$

$8 \times 9 = 72$

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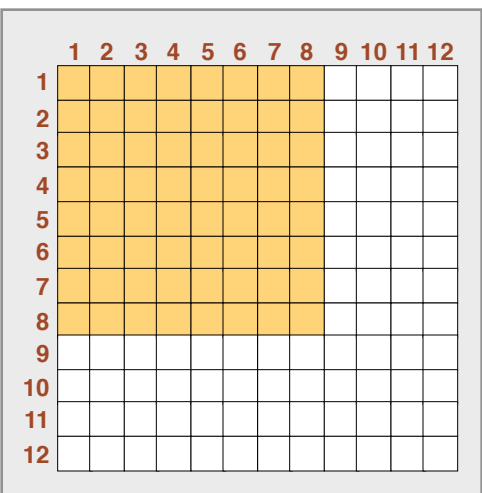
$8 \times 9$



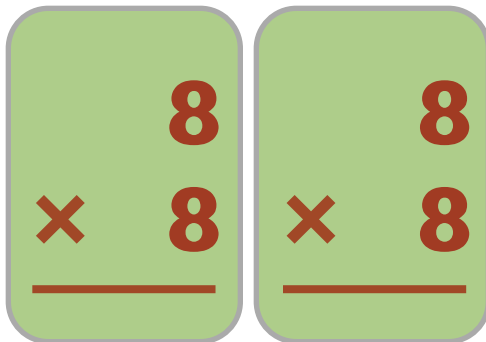
$9 \times 8$

$8 \times 8 = 64$

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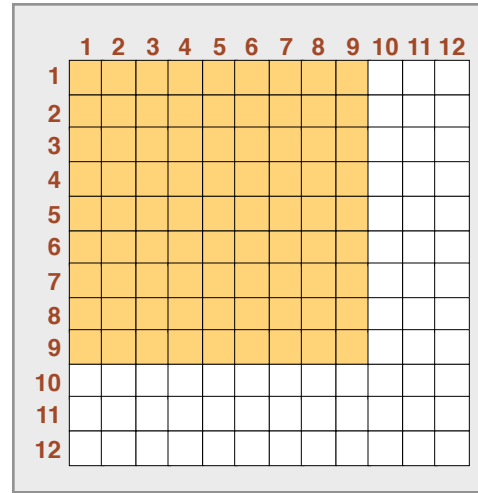
$8 \times 8$



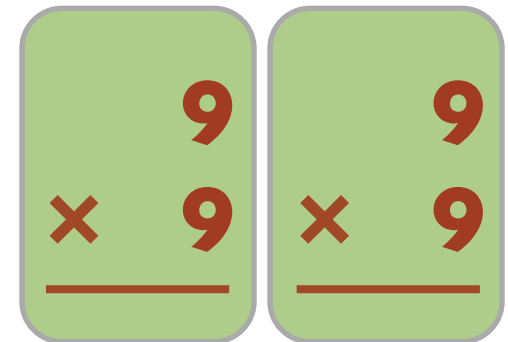
$8 \times 8$

$9 \times 9 = 81$

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$9 \times 9$



$9 \times 9$