Picture Puzzles

Rows, Rectangles and Multiplication

Picture Puzzles

Picture Puzzles

Creator ... Doug. Williams
Publisher ... Mathematics Centre ... mathematicscentre.com

This Picture Puzzle is based on combining and extending the learning involved in several Calculating Changes activities.
http://www.mathematicscentre.com/calchange
It also complements Maths300 Lesson 162, *Multiplication in a Table Format*.

Picture Puzzles

Picture Puzzles

To Do

1. Revisit your knowledge of rows, rectangles, multiplication and times tables.
2. Break a multiplication into parts so you can use your knowledge.

You Need

- Poly Plug or a Times Tables chart
- Drinking straws, pencils or other thin sticks
- Graph paper

Picture Puzzles

Picture
Puzzles

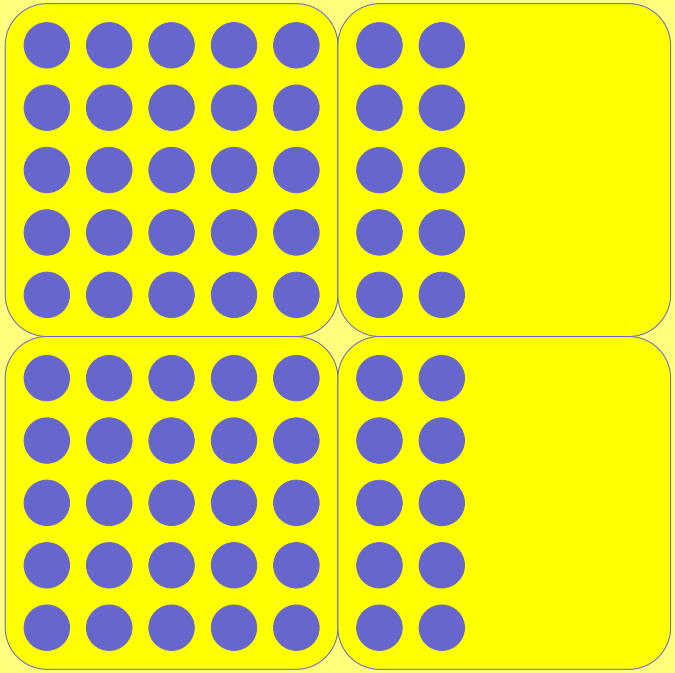
Rows

Picture
Puzzles

Picture Puzzles

Rows of blue plugs.

Make this with Poly Plug or cover some of a Times Tables Chart.

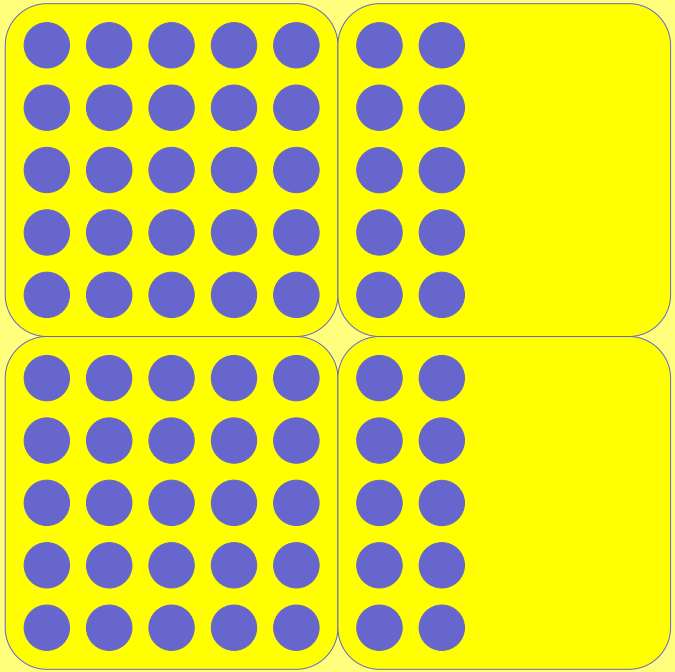


Rows go across your tummy.

Picture Puzzles

Picture Puzzles

There are different ways to say this picture.

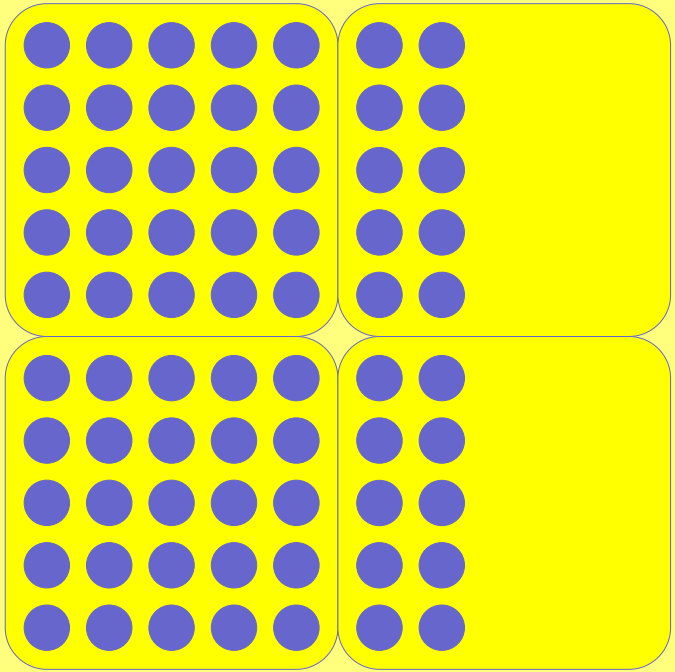


Picture Puzzles

Picture Puzzles

There are different ways to say this picture.

10 rows with 7 in each row



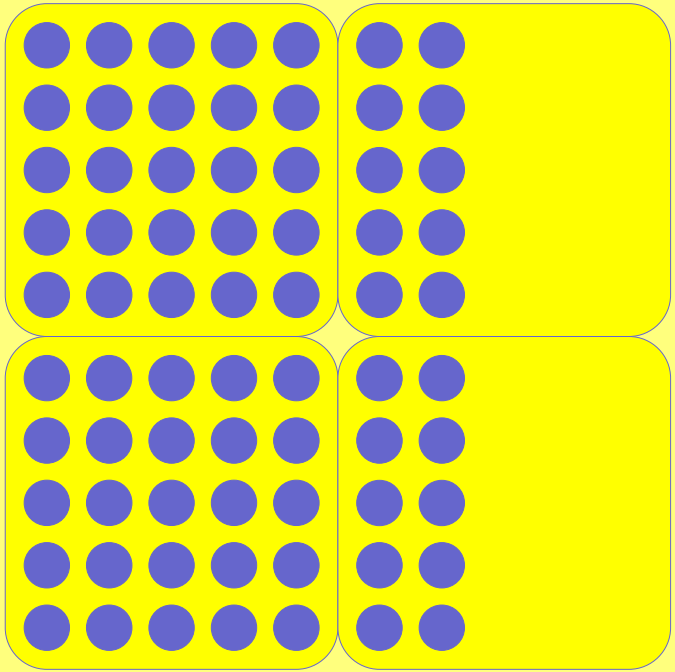
Picture Puzzles

Picture Puzzles

There are different ways to say this picture.

10 rows with 7 in each row

10 rows of 7



Picture Puzzles

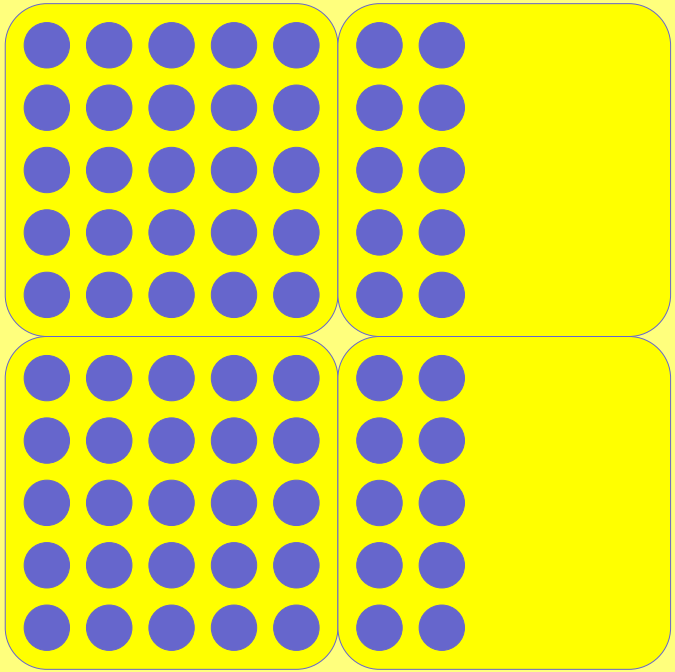
Picture Puzzles

There are different ways to say this picture.

10 rows with 7 in each row

10 rows of 7

10 times I see 7



Picture Puzzles

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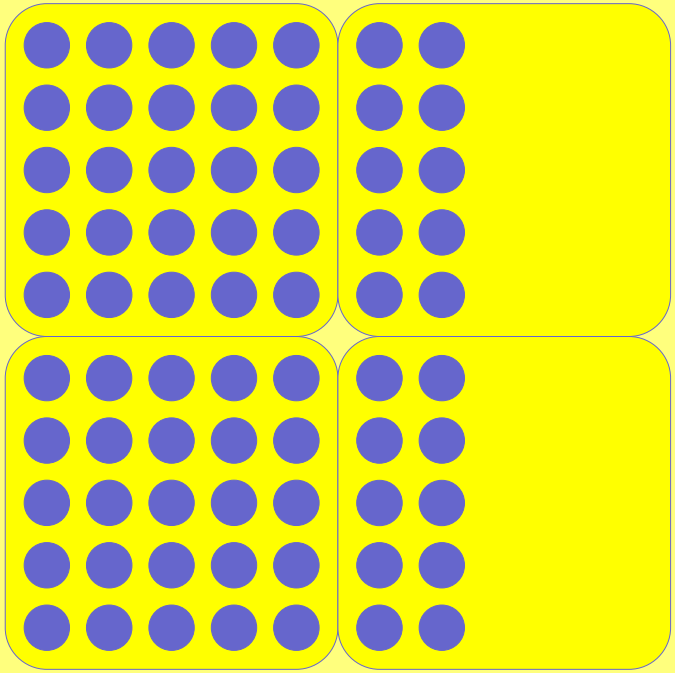
There are different ways to say this picture.

10 rows with 7 in each row

10 rows of 7

10 times I see 7

10 times 7



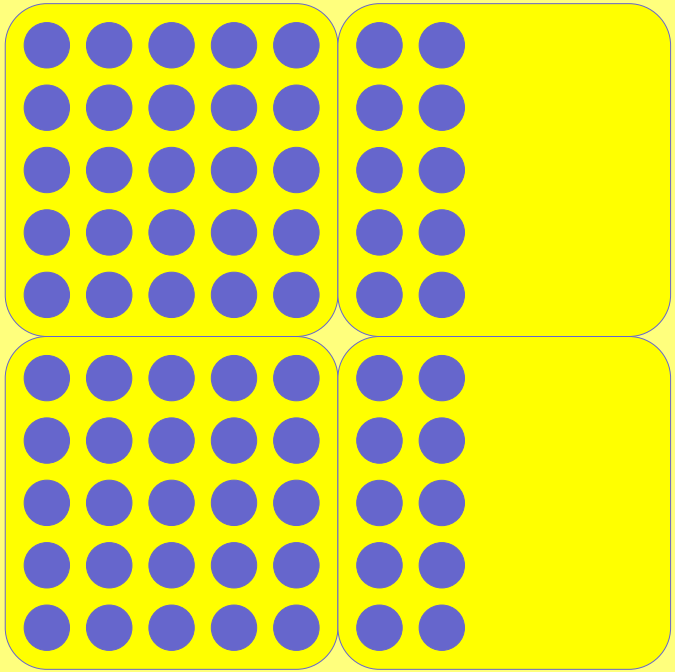
Picture Puzzles

Picture Puzzles

There are different ways to say this picture.

10 rows with 7 in each row
10 rows of 7
10 times I see 7
10 times 7

But they are all written the same way.



Picture Puzzles

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There are different ways to say this picture.

10 rows with 7 in each row

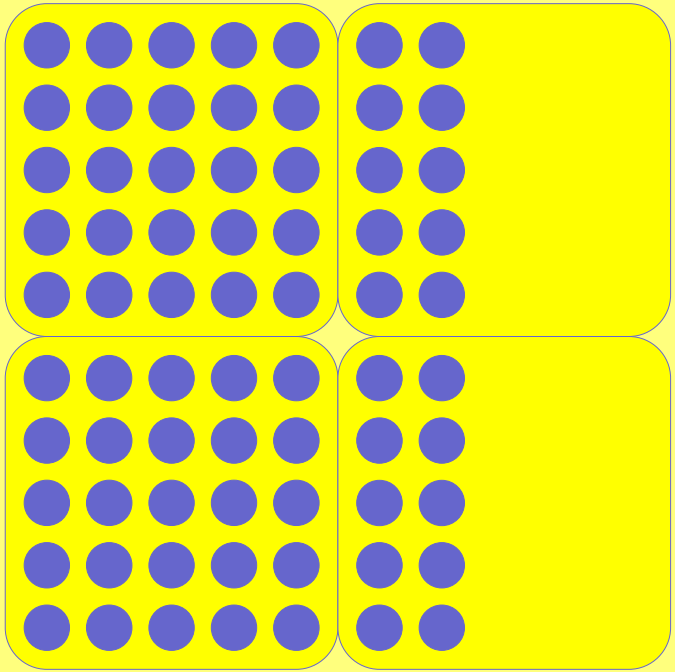
10 rows of 7

10 times I see 7

10 times 7

But they are all written the same way.

10 x 7



Picture Puzzles

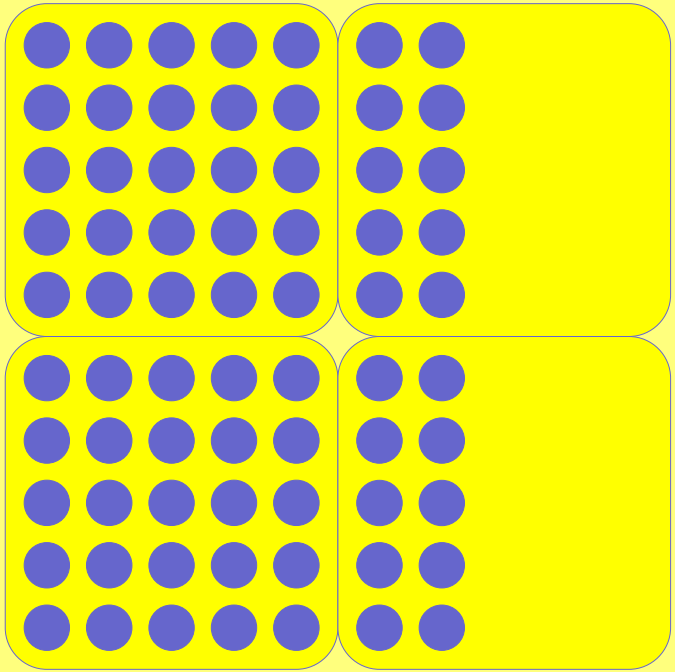
Picture Puzzles

There are different ways to say this picture.

10 rows with 7 in each row
10 rows of 7
10 times I see 7
10 times 7

But they are all written the same way.

10 x 7



Read or write *10 x 7*.
Say or think *10 times 7* or *10 rows of 7*.

Picture Puzzles

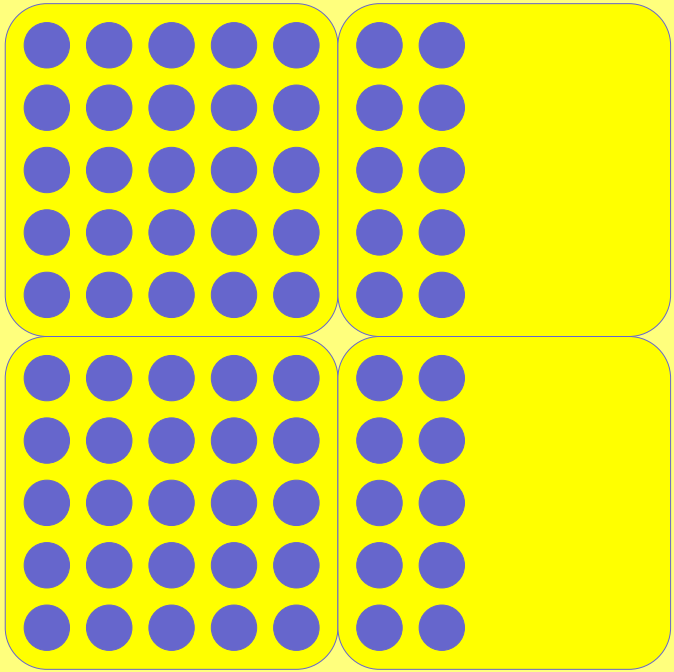
Picture Puzzles

There are different ways to say this picture.

10 rows with 7 in each row
10 rows of 7
10 times I see 7
10 times 7

But they are all written the same way.

10 x 7



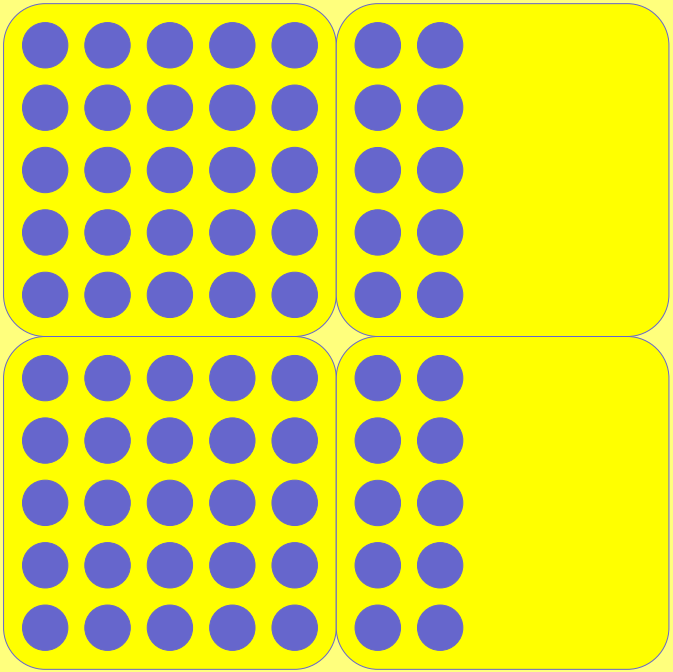
Read or write *10 x 7*.
Say or think *10 times 7* or *10 rows of 7*.

Special note: They are all written this way in English speaking countries.

Picture Puzzles

Picture Puzzles

Answer in your journal.

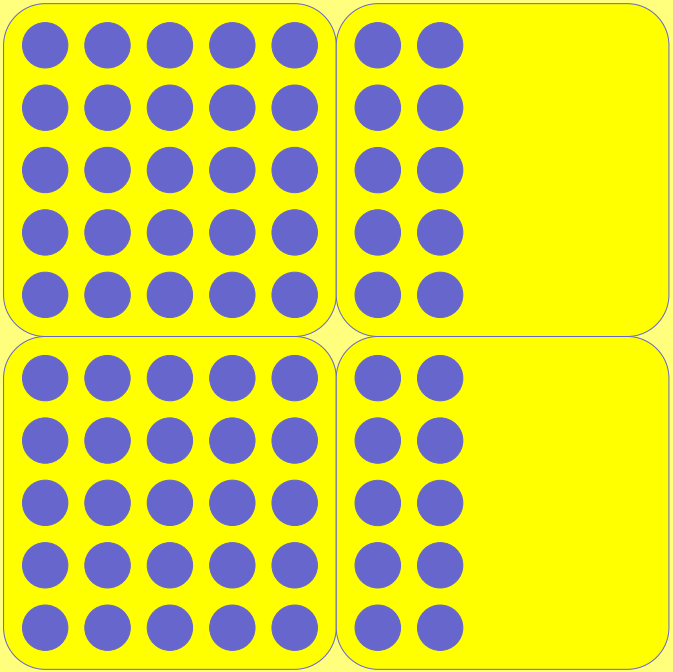


10 x 7
= ...?

Picture Puzzles

Picture Puzzles

Answer in your journal.



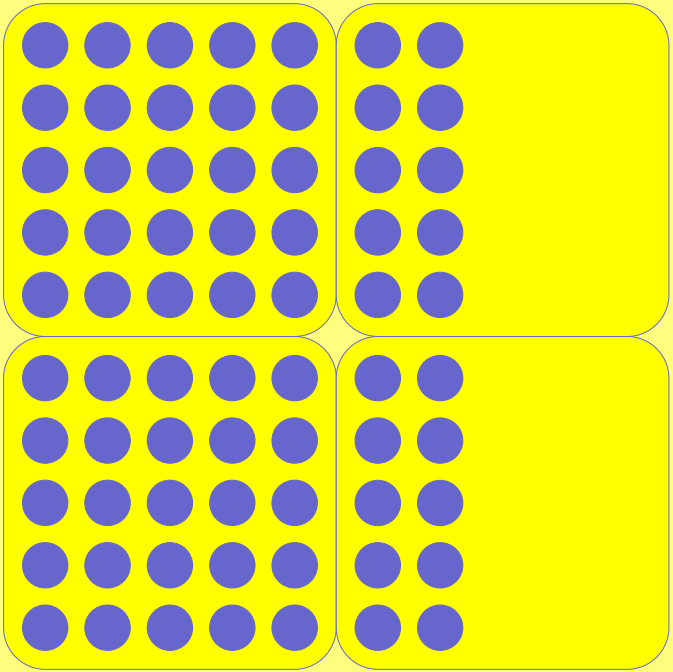
10 x 7
= ...?

How do you know?

Picture Puzzles

Picture Puzzles

Answer in your journal.



10 x 7
= ...?

How do you know?

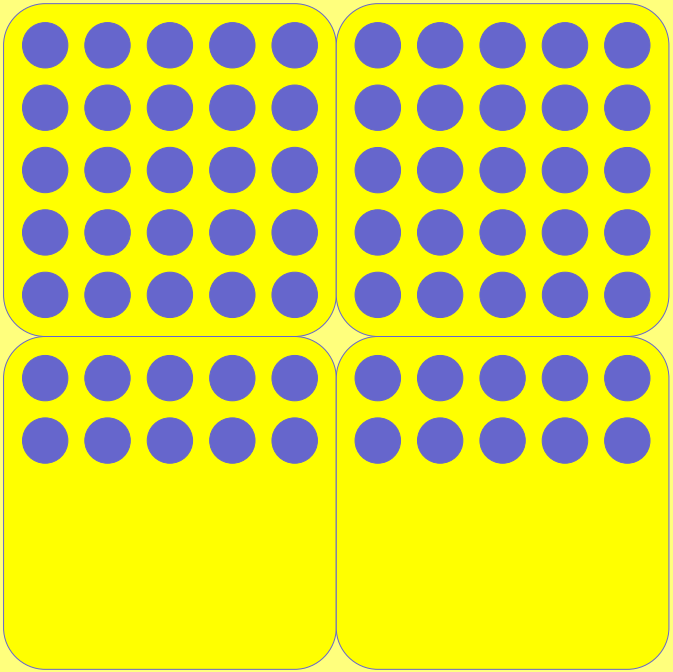
Can you check that another way?

Straws can help you find other ways.

Picture Puzzles

Picture Puzzles

Answer in your journal.

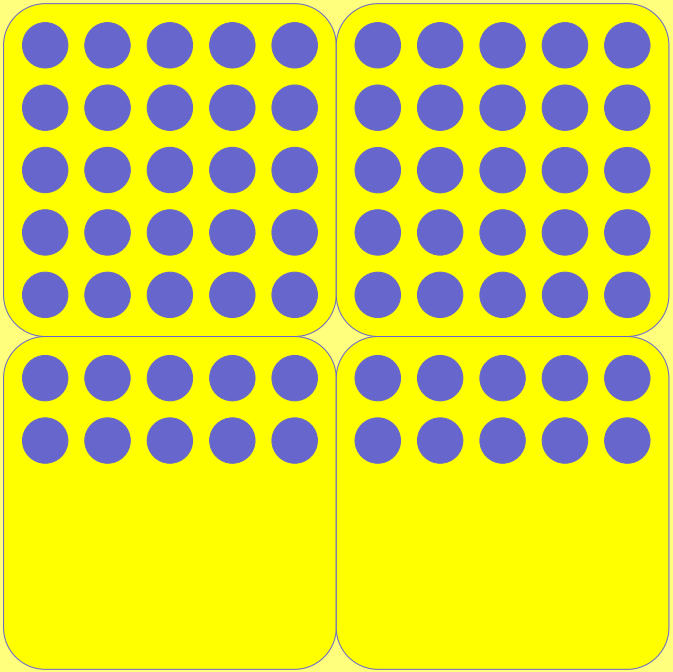


... rows of ...
or
... times ...

Picture Puzzles

Picture Puzzles

Answer in your journal.



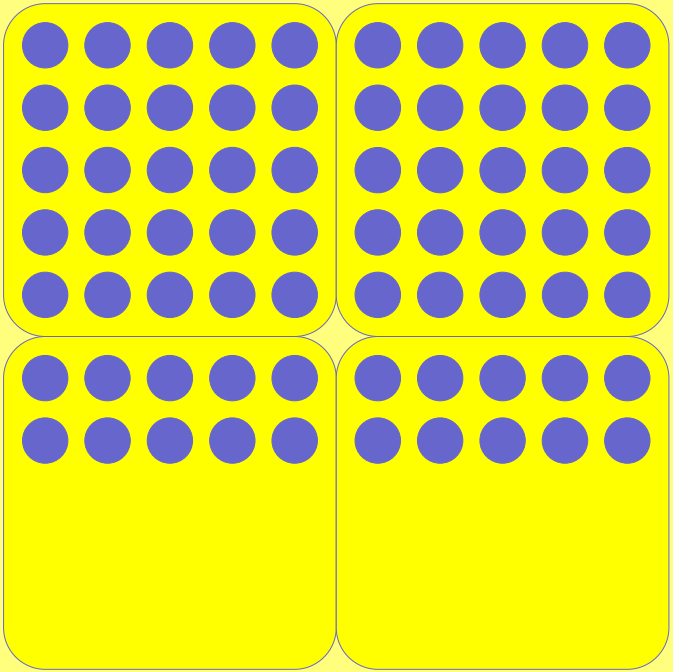
... rows of ...
or
... times ...

... x ...
= ...

Picture Puzzles

Picture Puzzles

Answer in your journal.



... rows of ...
or
... times ...

... x ...
= ...

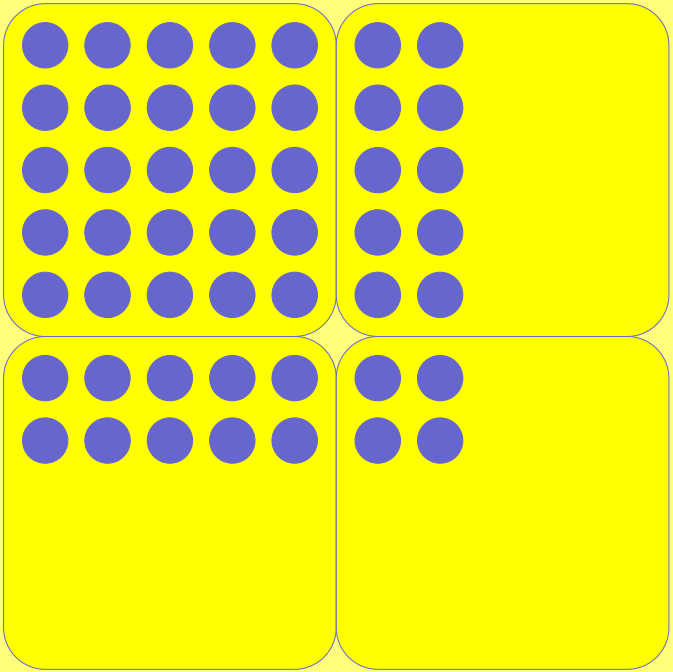
How do you know?

Can you check that another way?

Picture Puzzles

Picture Puzzles

Answer in your journal.



... x ...
= ...

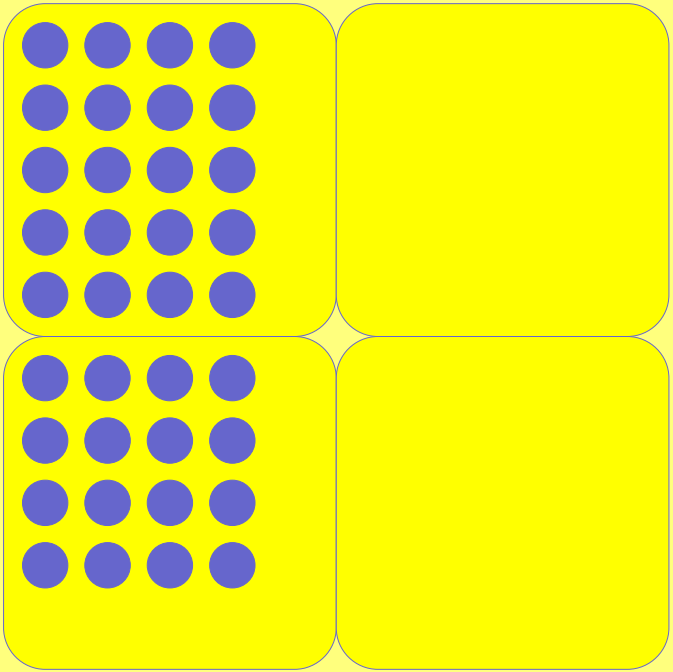
How do you know?

Can you check that another way?

Picture Puzzles

Picture Puzzles

Answer in your journal.



... x ...
= ...

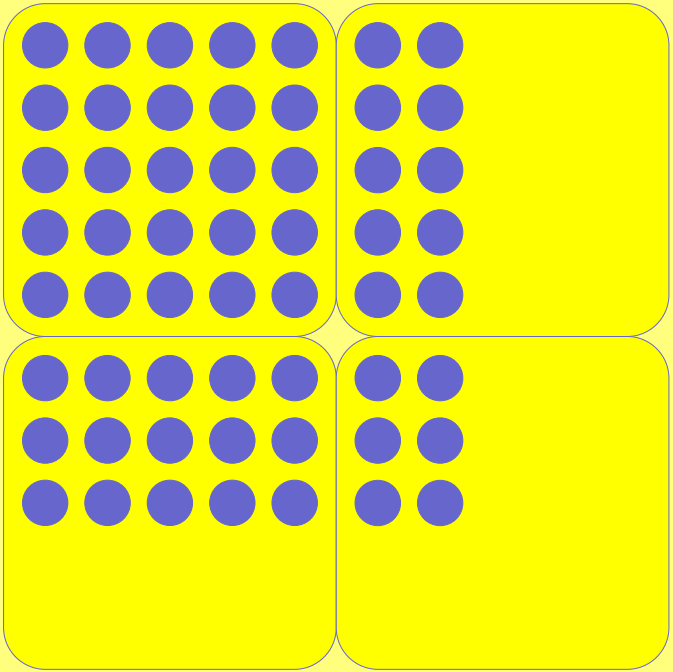
How do you know?

Can you check that another way?

Picture Puzzles

Picture Puzzles

Answer in your journal.



... x ...
= ...

How do you know?

Can you check that another way?

Picture Puzzles

Picture
Puzzles

Rectangles

Picture
Puzzles

Picture Puzzles

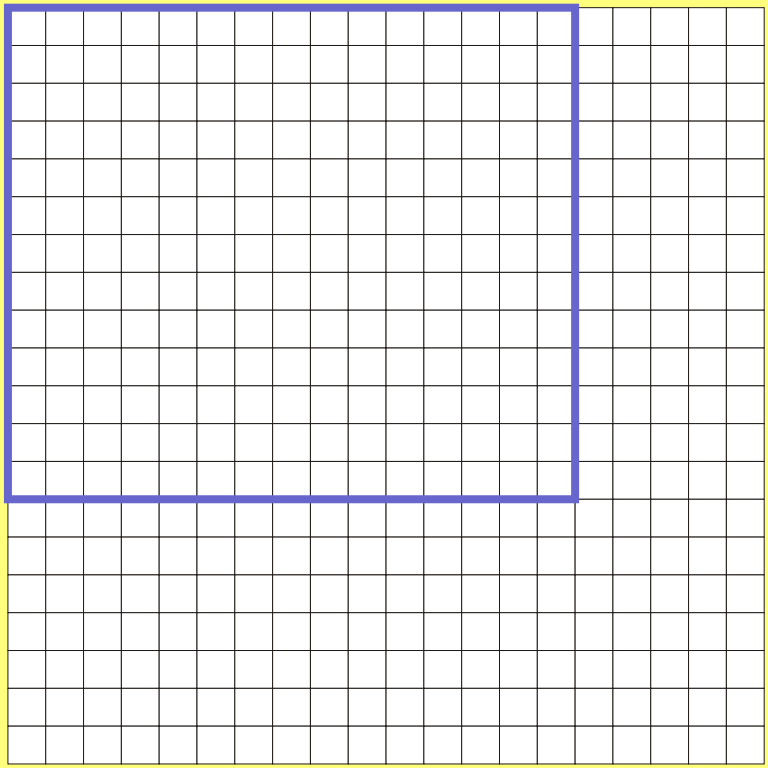
$13 \times 15 = ?$

Picture Puzzles

Picture Puzzles

13 x 15 = ?

Draw this on graph paper.



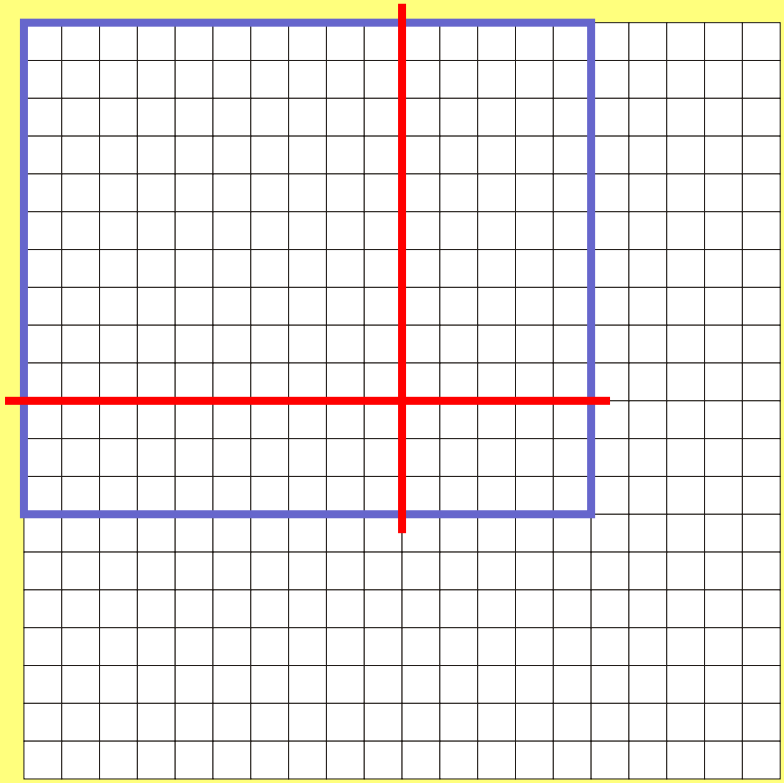
Picture Puzzles

Picture Puzzles

13 x 15 = ?

Draw this on graph paper.

Break the problem into parts with two straws.



Picture Puzzles

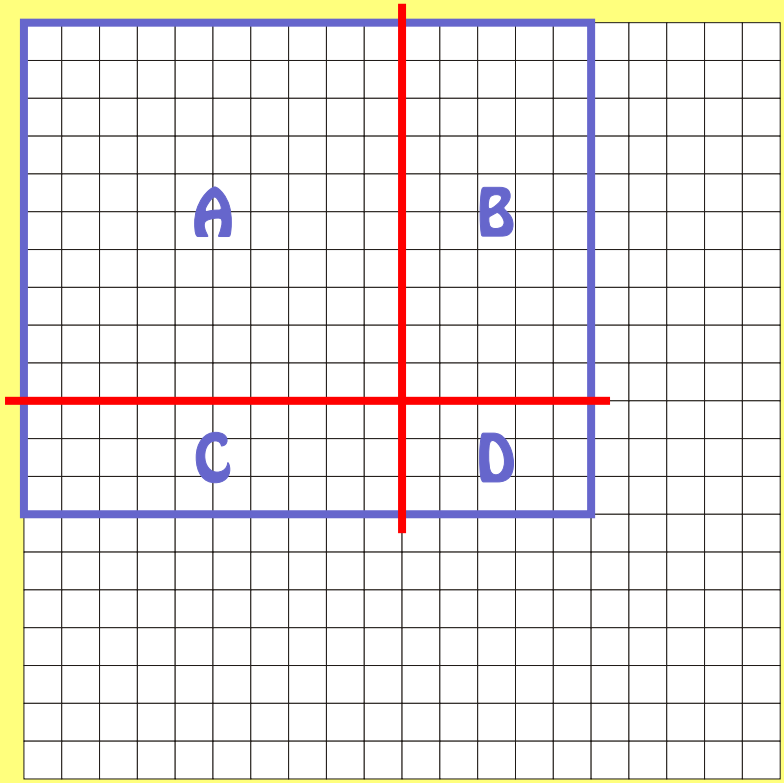
Picture Puzzles

13 x 15 = ?

Draw this on graph paper.

Break the problem into parts with two straws.

To find the answer, add the parts.



Picture Puzzles

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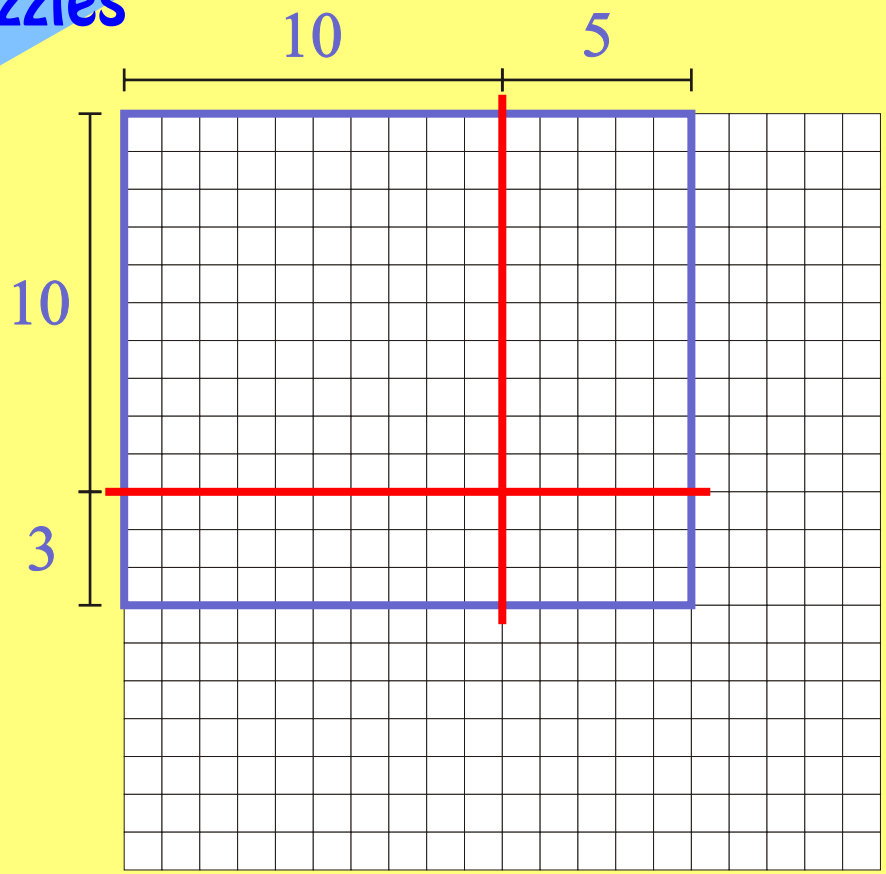
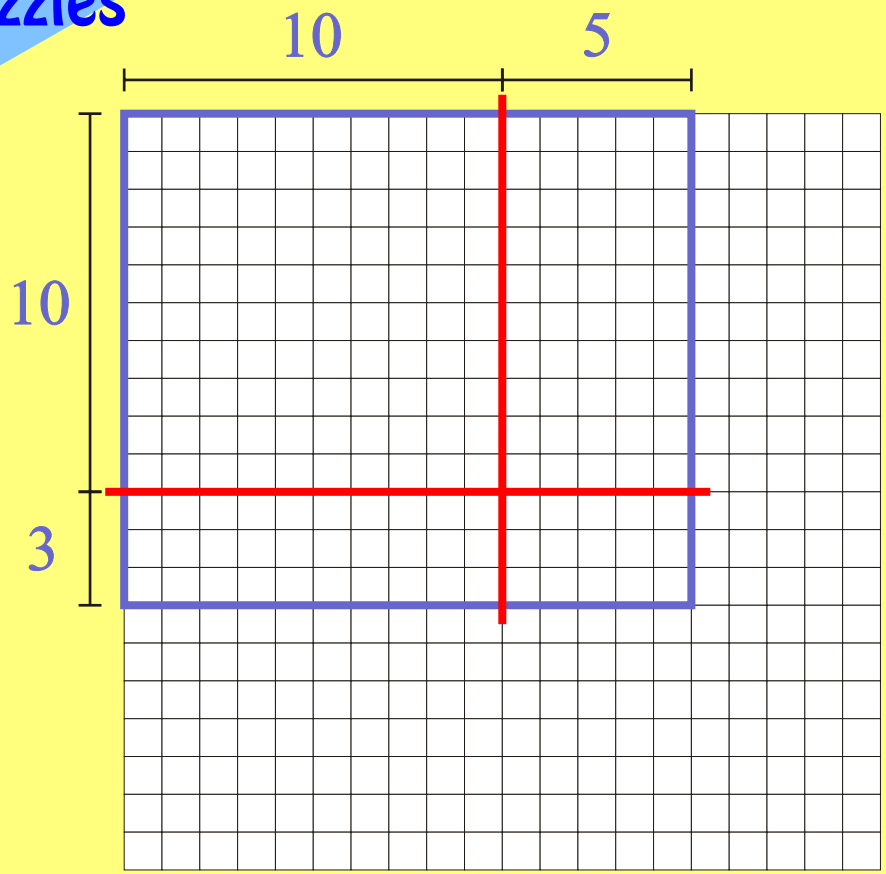


Picture Puzzles

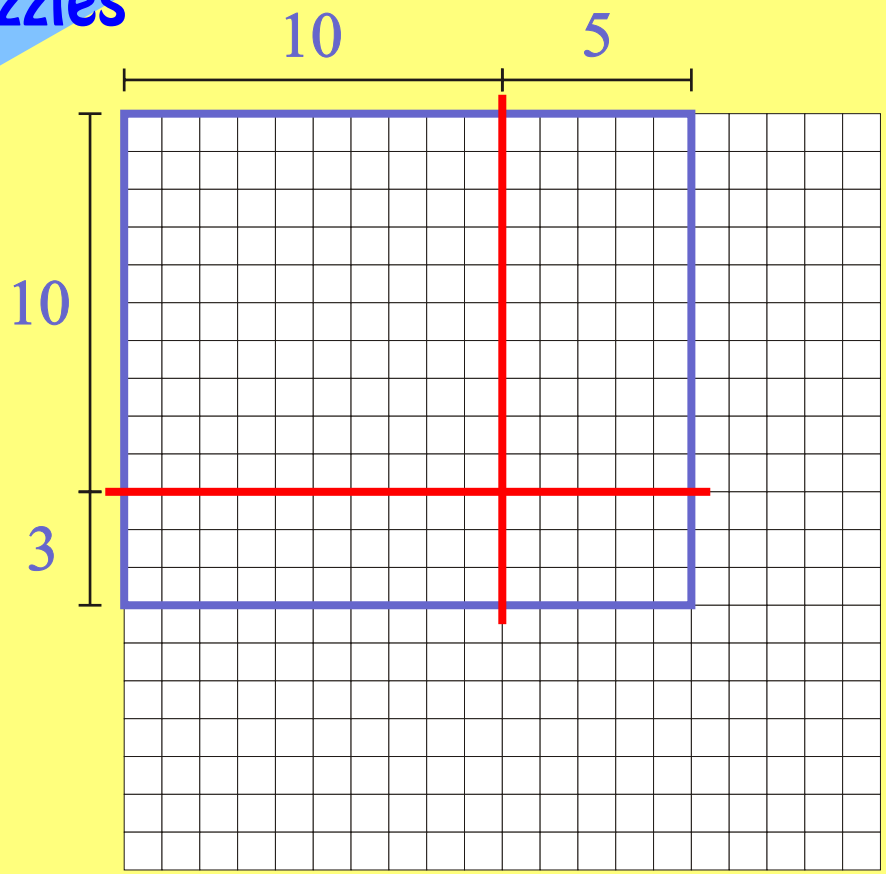
Picture Puzzles



X	10	5
10		
3		

Picture Puzzles

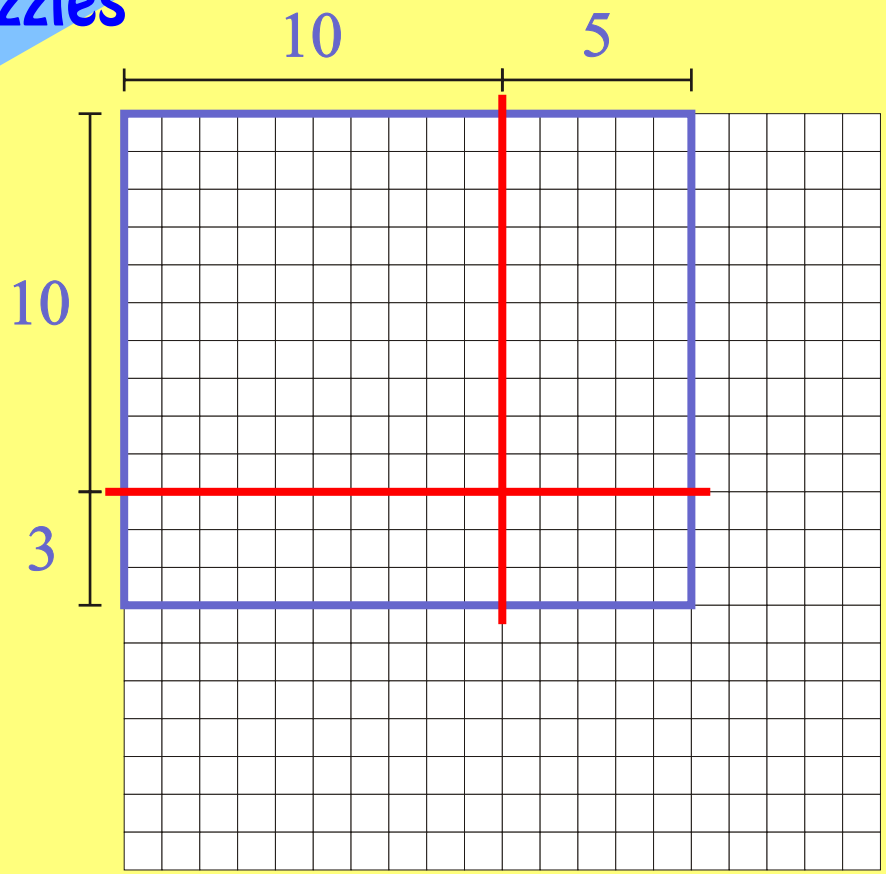
Picture Puzzles



X	10	5
10	100	
3		

Picture Puzzles

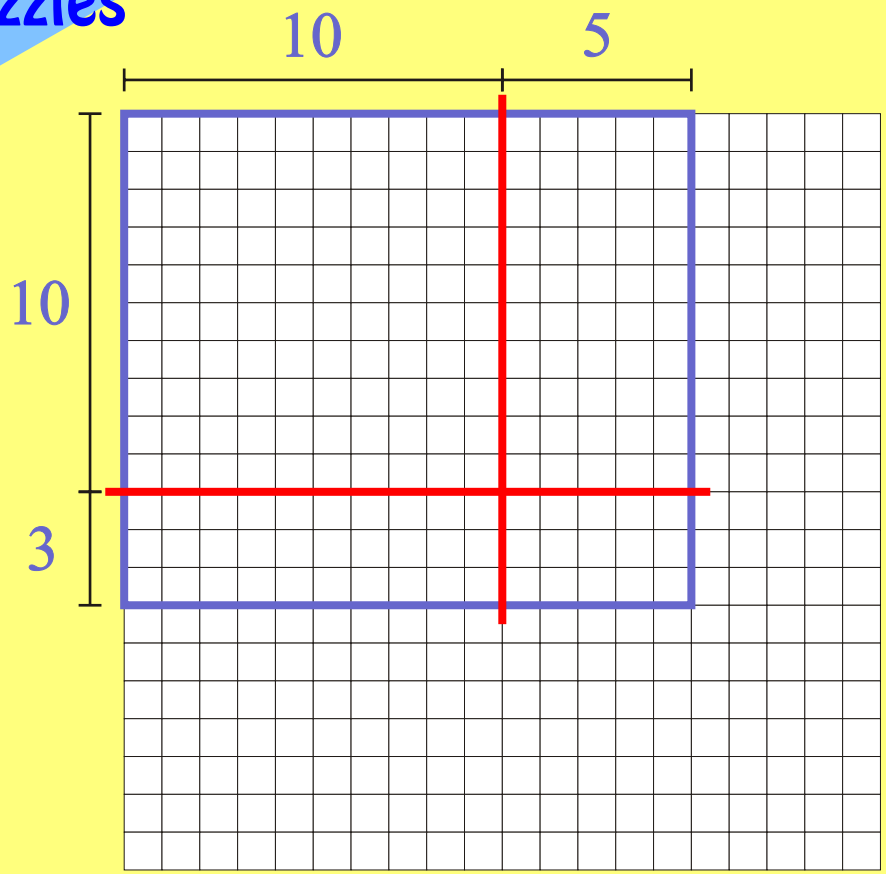
Picture Puzzles



X	10	5
10	100	50
3		

Picture Puzzles

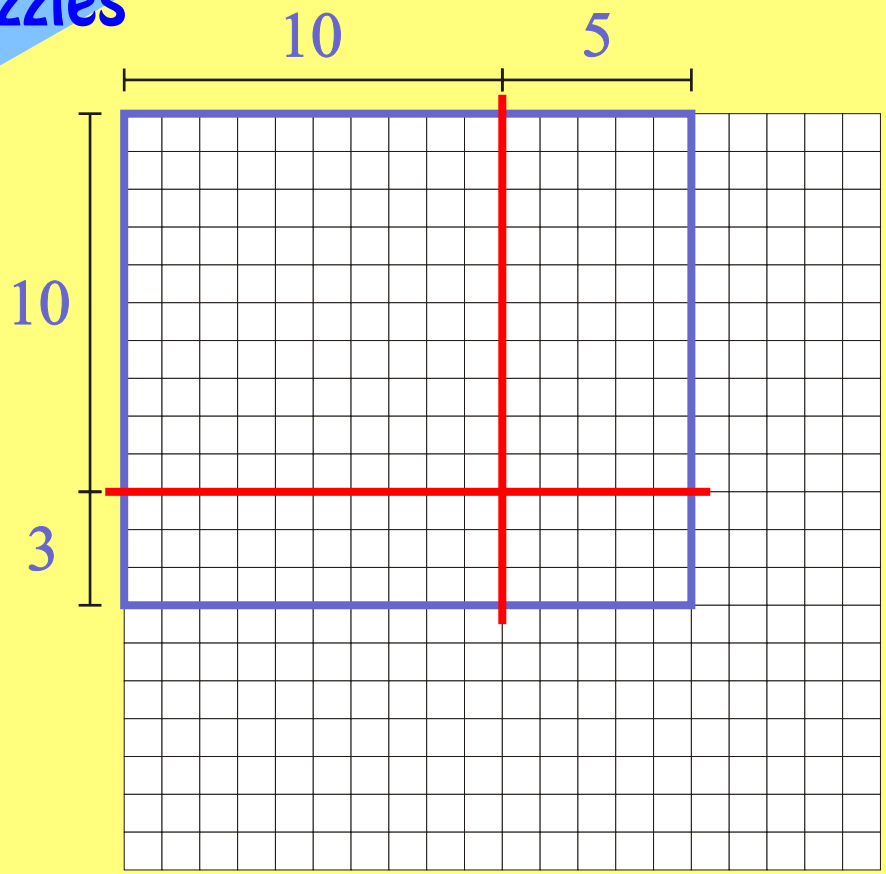
Picture Puzzles



X	10	5
10	100	50
3	30	

Picture Puzzles

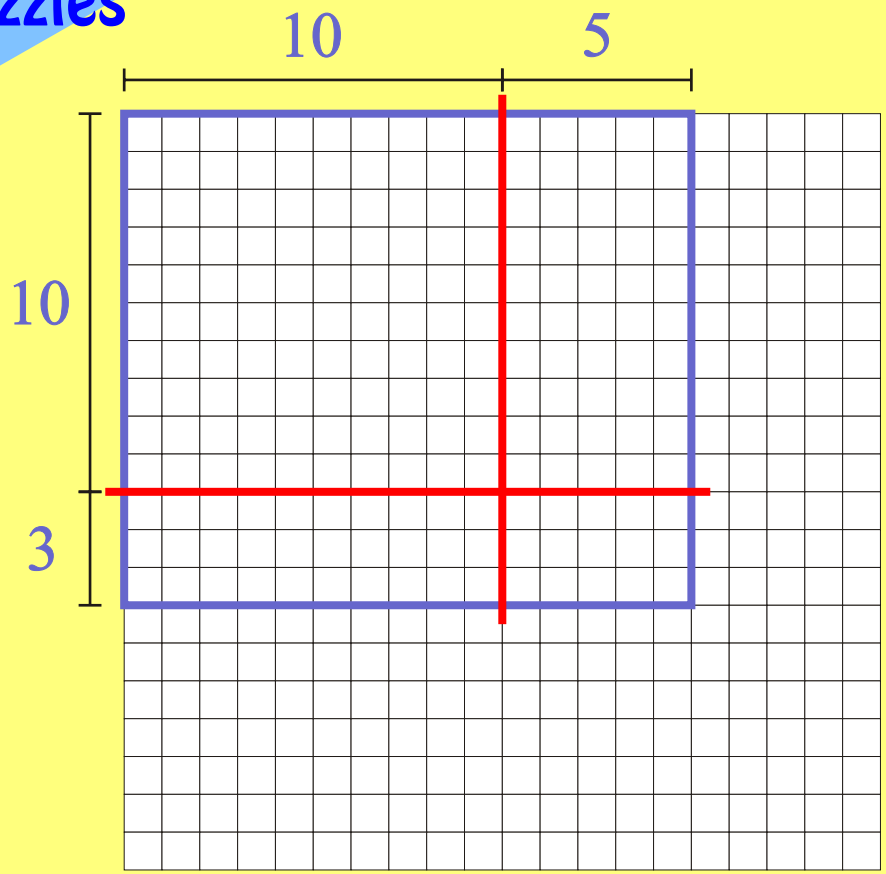
Picture Puzzles



X	10	5
10	100	50
3	30	15

Picture Puzzles

Picture Puzzles



X	10	5
10	100	50
3	30	15

13 x 15

100

.....

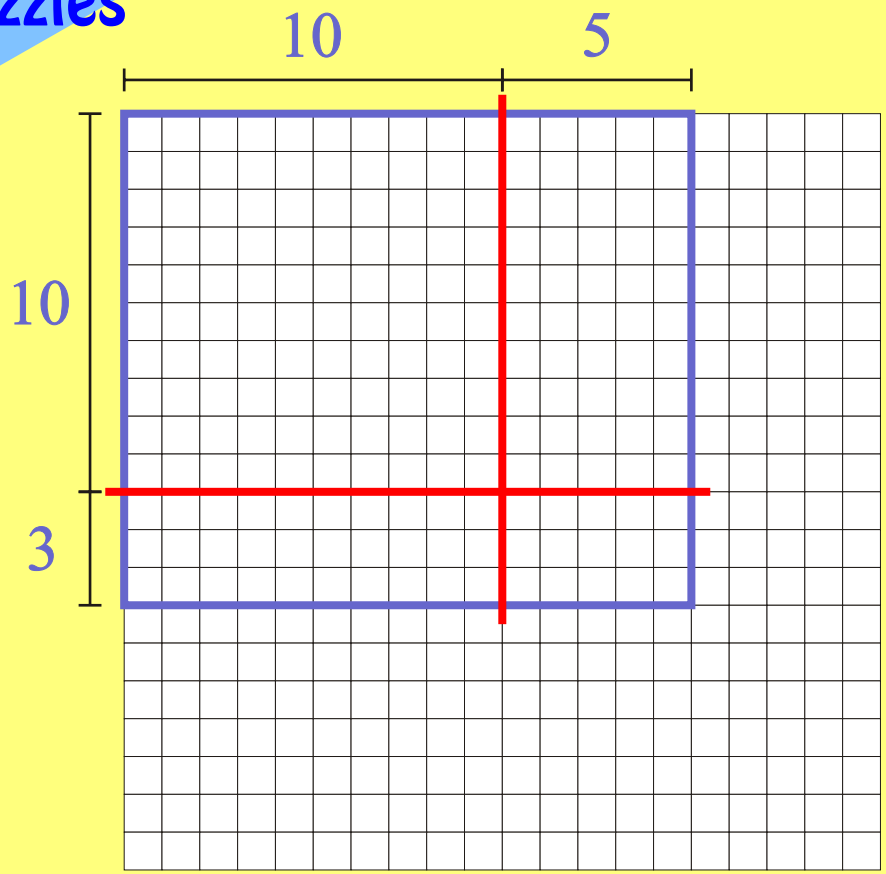
30

\+ .....

= 195

Picture Puzzles

Picture Puzzles



X	10	5
10	100	50
3	30	15

13 x 15

100

.....

30

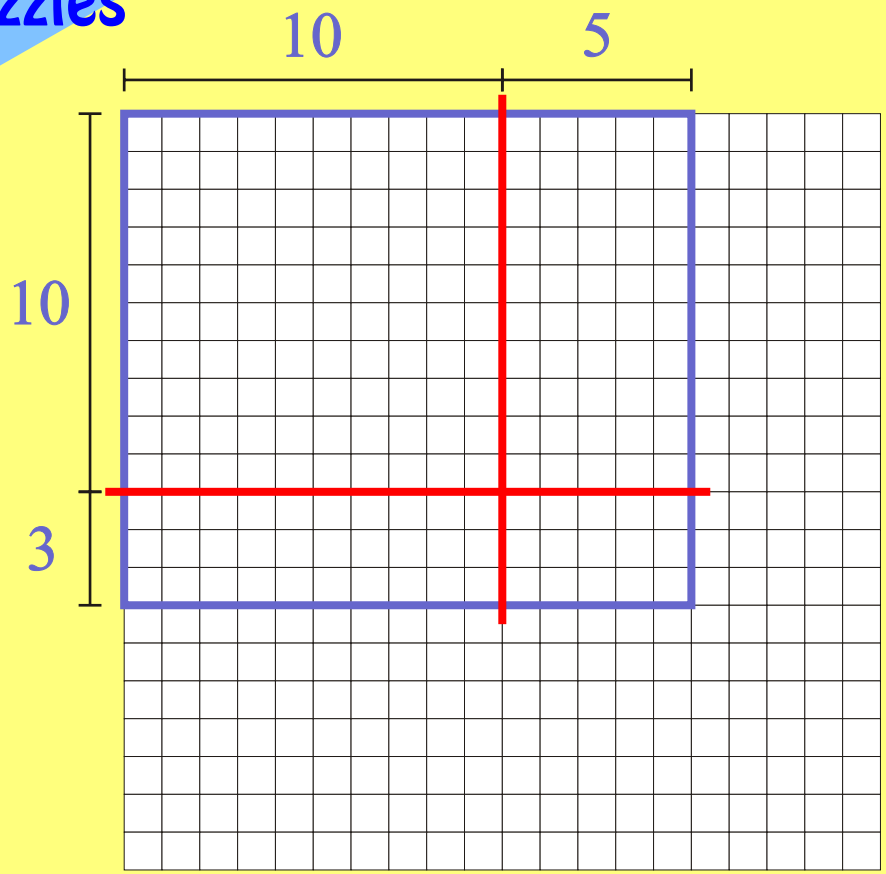
\+ .....

= 195

Copy and complete in your journal.

Picture Puzzles

Picture Puzzles



X	10	5
10	100	50
3	30	15

13 x 15

100

.....

30

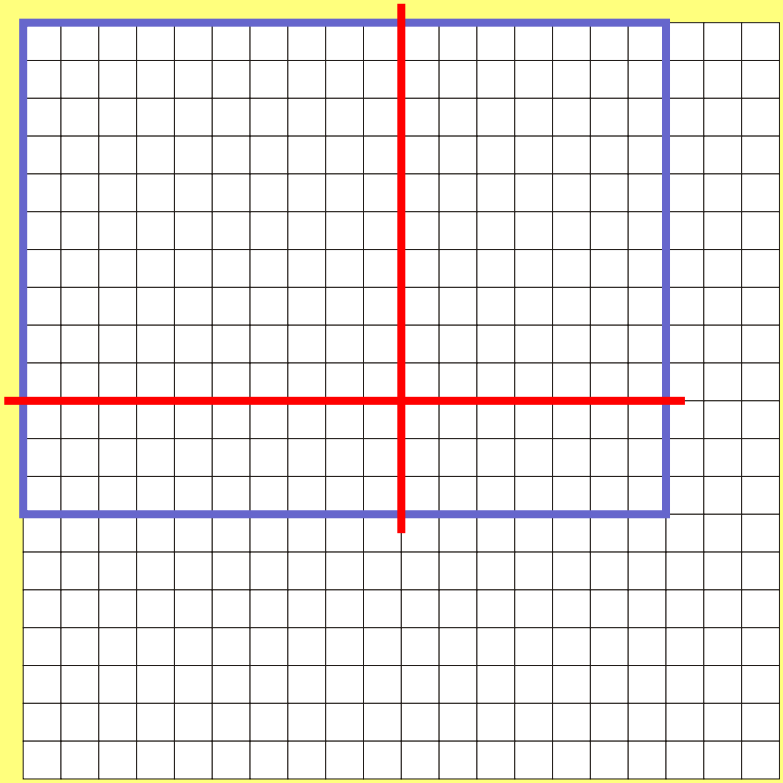
\+ .....

= 195

Copy and complete in your journal.
Can you check it another way?

Picture Puzzles

Picture Puzzles



x		

.... x ....

.....

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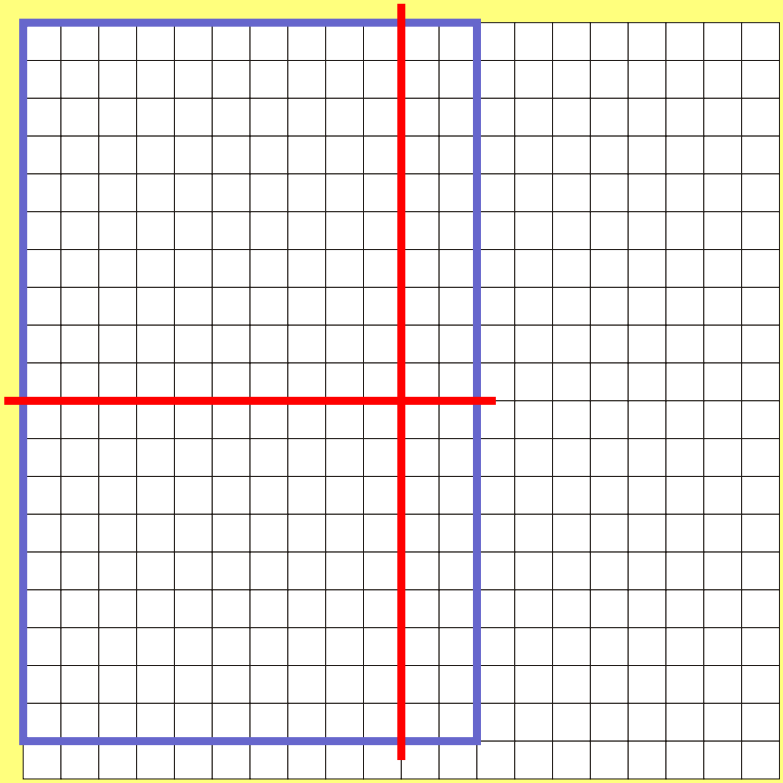
\+ .....

= ....

Copy and complete in your journal.
Can you check it another way?

Picture Puzzles

Picture Puzzles



x		

.... x ....

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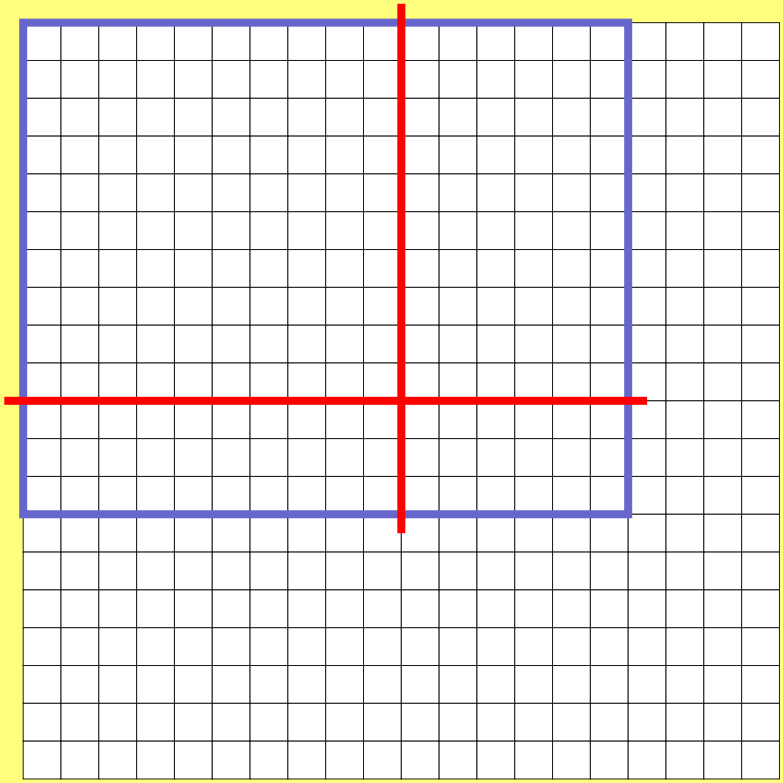
\+ .....

= ....

Copy and complete in your journal.
Can you check it another way?

Picture Puzzles

Picture Puzzles



x		

.... x ....

.....

.....

.....

\+ .....

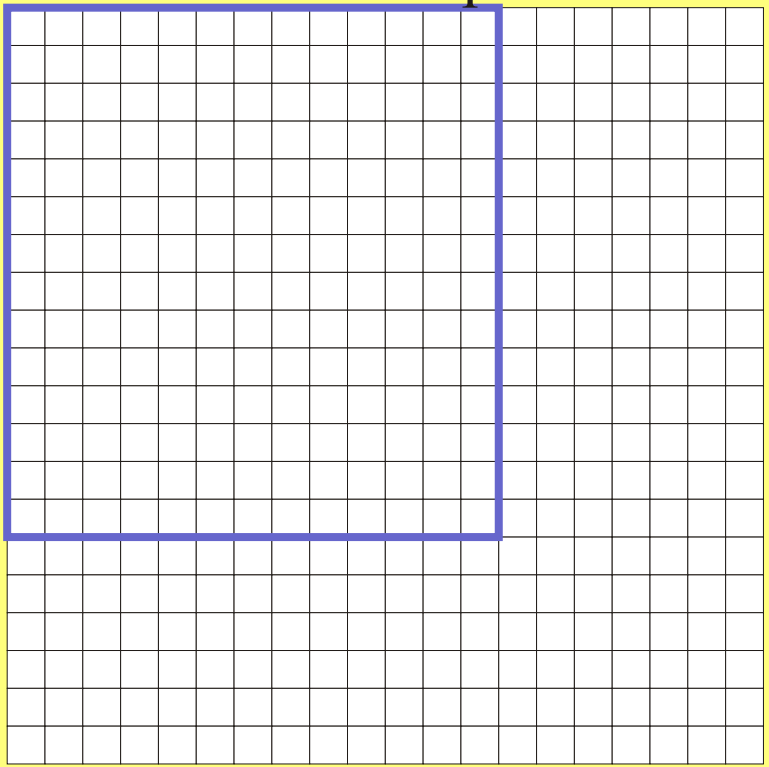
= ....

Copy and complete in your journal.
Can you check it another way?

Picture Puzzles

Picture Puzzles

Choose where to put the straws.



x		

.... x ....

.....

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.....

\+ .....

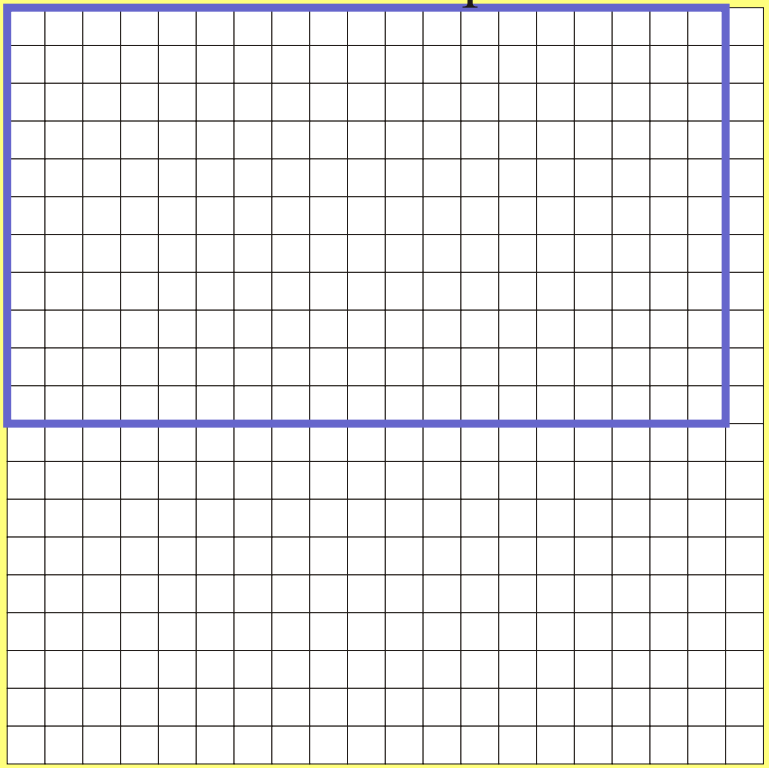
= ....

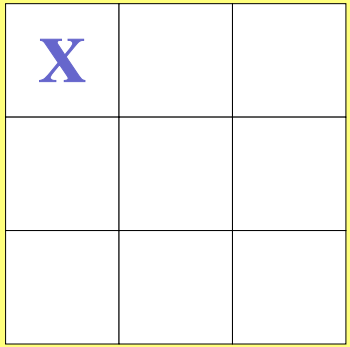
Work it all out and check it another way.

Picture Puzzles

Picture Puzzles

Choose where to put the straws.





.... x ....

.....

.....

.....

\+ .....

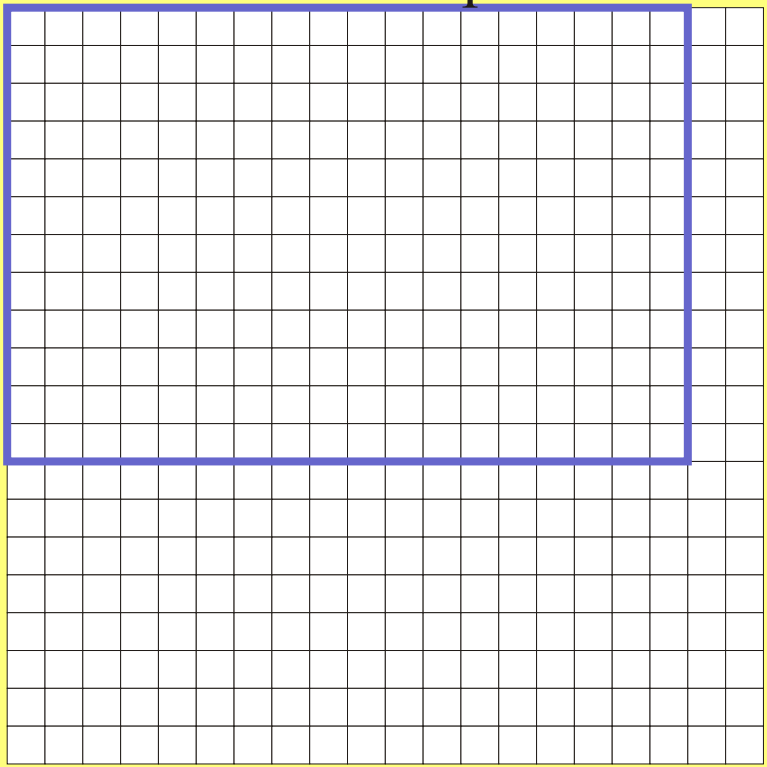
= ....

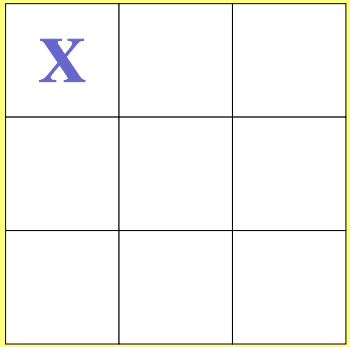
Work it all out and check it another way.

Picture Puzzles

Picture Puzzles

Choose where to put the straws.





.... x ....

.....

.....

.....

\+ .....

= ....

Work it all out and check it another way.

Picture Puzzles

Picture
Puzzles

Multiplication

Picture
Puzzles

Picture Puzzles

16

15

?

x		

.... x ....

.....

.....

.....

\+ .....

= ....

Work it all out and check it another way.

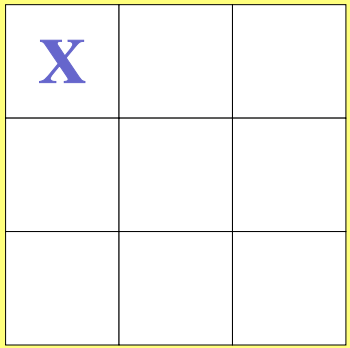
Picture Puzzles

Picture Puzzles

13

18

?



.... x ....

.....

.....

.....

\+ .....

= ....

Work it all out and check it another way.

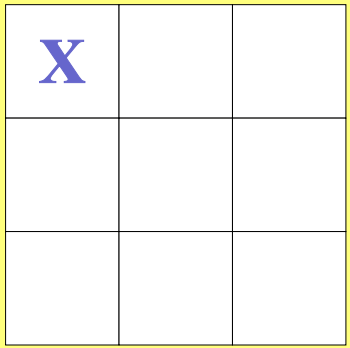
Picture Puzzles

Picture Puzzles

19

11

?



.... x ....

.....

.....

.....

\+ .....

= ....

Work it all out and check it another way.

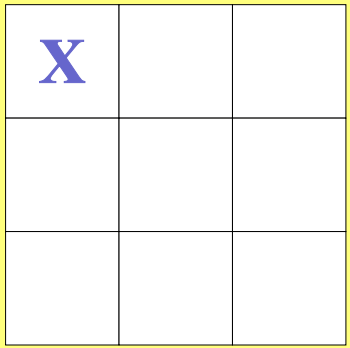
Picture Puzzles

Picture Puzzles

21

13

?



.... x ....

.....

.....

.....

\+ .....

= ....

Work it all out and check it another way.

Picture Puzzles

Picture Puzzles

13

24

?

x		

.... x ....

.....

.....

.....

\+ .....

= ....

Work it all out and check it another way.

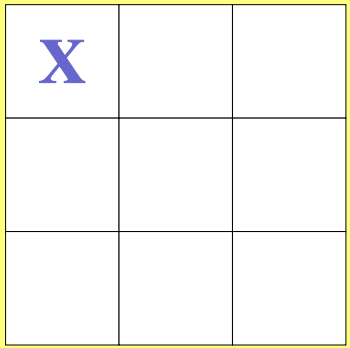
Picture Puzzles

Picture Puzzles

15

35

?



.... x ....

.....

.....

.....

\+ .....

= ....

Work it all out and check it another way.

Picture Puzzles

Picture Puzzles

Try these using a diagram in your head.

Just make the chart and show the working out.

23 x 18

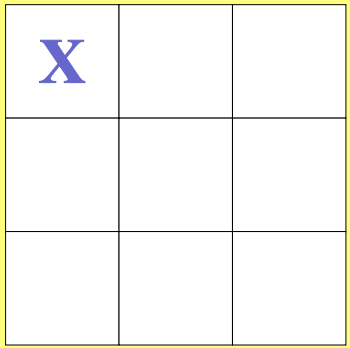
23 x 38

45 x 17

55 x 55

78 x 27

Try one of your own each day.



.... x ....

.....

.....

.....

\+ .....

= ....

Remember to check each one another way.

Picture Puzzles

Picture
Puzzles

more

Picture
Puzzles

Picture Puzzles

What happens if there is a hundreds number?
Example: 27 x 123

What does the diagram look like?
Where do the straws go?
How would you draw the chart?
What would the working out look like?

Picture Puzzles

Picture
Puzzles

THE END...

...OR IS IT?

Picture
Puzzles