LESSON 9

Dividing by Numbers from 1 to 9

Explore

Use the multiplication chart.

x	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54
7	7	14	21	28	35	42	49	56	63
8	8	16	24	32	40	48	56	64	72
9	9	18	27	36	45	54	63	72	81

- Write the multiplication facts that have 8 as a factor.
  Use these facts to write all the division facts where you divide by 8.
  Draw arrays to show some of these facts.

- Repeat the activity for multiplication facts that have 9 as a factor.

Show *and* Share

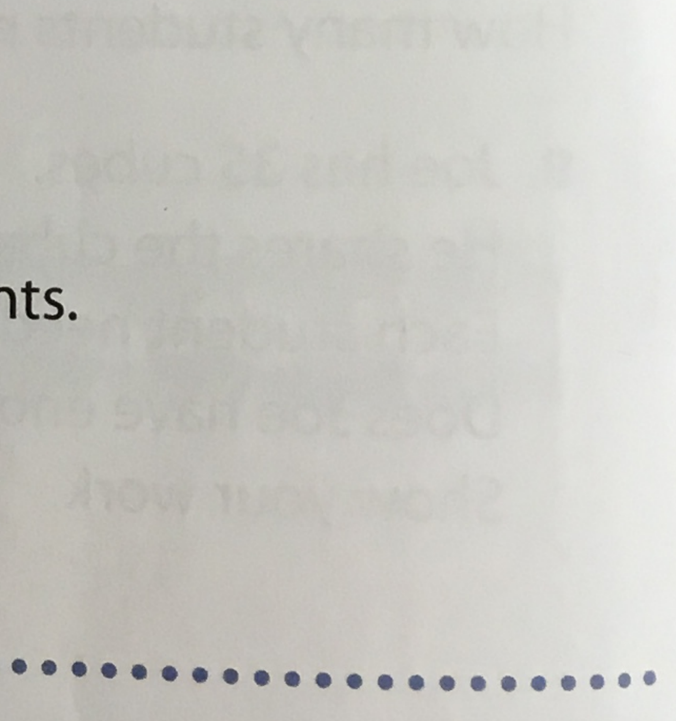
Share your facts and arrays with another pair of students.
How do you know if you found all the facts?

Connect

- To find $72 \div 9$:

Think multiplication: $9 \times \square = 72$

You know: $9 \times 8 = 72$
So, $72 \div 9 = 8$
Also, $72 \div 8 = 9$

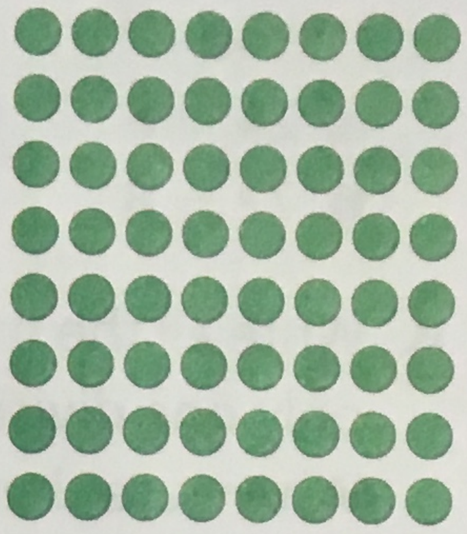


➤ To find $64 \div 8$:

Think multiplication: $8 \times \square = 64$

You know: $8 \times 8 = 64$

So, $64 \div 8 = 8$



For most multiplication facts, you know two division facts.

$7 \times 8 = 56$
$8 \times 7 = 56$
$56 \div 8 = 7$
$56 \div 7 = 8$

These are **related facts**.

For some multiplication facts, you know one division fact.

$7 \times 7 = 49$
$49 \div 7 = 7$

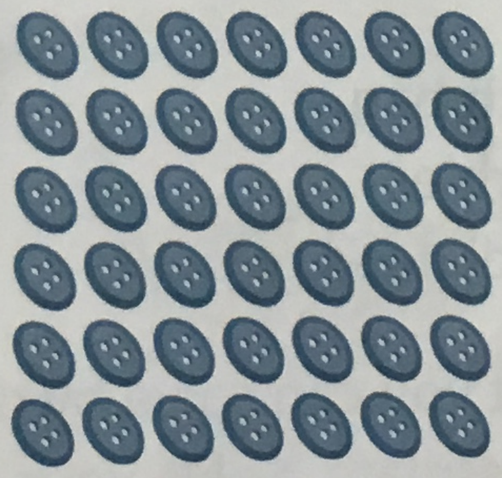
Use counters or grid paper when they help.

Practice

1. Write two multiplication facts and two division facts for each array.

a)

b)



2. Find each product.
Then write a related multiplication fact and two division facts.

a) $7 \times 3 = \square$ **b)** $8 \times 6 = \square$ **c)** $5 \times 9 = \square$ **d)** $9 \times 7 = \square$

3. Write four related facts for each set of numbers.

a) 9, 4, 36 **b)** 5, 8, 40 **c)** 4, 7, 28 **d)** 1, 7, 7

4. **a)** One number in a set of related facts is 63. What could the facts be?
b) One number in a set of related facts is 8. What could the facts be?

5. Divide.

a) $24 \div 8$ **b)** $36 \div 9$ **c)** $56 \div 8$ **d)** $9 \div 1$ **e)** $16 \div 8$

f) $72 \div 8$ **g)** $63 \div 9$ **h)** $27 \div 3$ **i)** $8 \div 8$ **j)** $64 \div 8$

6. Write all the multiplication facts for which there is only one division fact.
Where are these products on the multiplication chart?
Write each related division fact.

7. Divide.

a) $35 \div 5$ **b)** $45 \div 9$ **c)** $81 \div 9$ **d)** $18 \div 6$

e) $20 \div 4$ **f)** $36 \div 9$ **g)** $54 \div 9$ **h)** $63 \div 9$

8. a) If you know that $63 \div 9 = 7$, what else do you know?
b) Write a story problem that could be represented by the equation in part a.

9. Grade 4 students are going on an activities day.
There are 32 students in the class.
Eight students can go in each canoe.
How many canoes will be needed?
Write an equation for this problem.
Solve the equation.

10. There are 9 marbles in each bag.
Heidi wants to buy 54 marbles.
How many bags does Heidi need to buy?

11. Write a story problem that you can solve by dividing.
Trade problems with a classmate. Solve your classmate's problem.

12. a) Is $48 \div 8$ more or less than $40 \div 8$? How do you know?
b) Is $72 \div 9$ more or less than $72 \div 8$? How do you know?
Show your work.

Reflect

How can you use an array to show how multiplication and division are related?