3rd Grade Mission 3 Notes

Multiplication Sentence

$5 \times 3 = 15$

Number of groups — Size of each group — Total

Also called **product**

Commutative property

When the total and factors stay the same numbers, but the factors switch places.

$2 \times 6 = 12 \qquad 6 \times 2 = 12$

$2 \times 6 = 6 \times 2$

2 sixes = 6 twos

factors

products

	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

1 block = 9

6 nines = 5 nines + 1 nine

= 45 + 9

= 54

$6 \times 9 = 54$

$9 \times 6 = 54$

$24 \div 3 = b$ $3 \times b = 24$

The b **represents the unknown** in the problem.

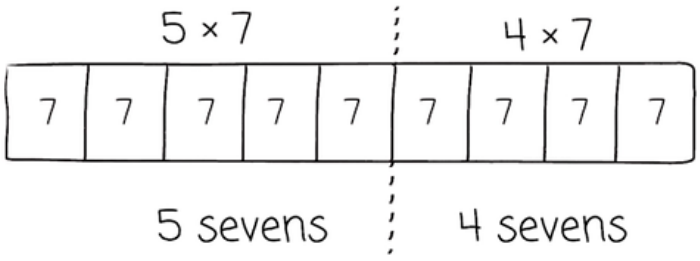
$b = 8$

Multiplication sentence and Repeated Addition

$3 \times 4 = 4 + 4 + 4$

$5 \times 3 = 3 + 3 + 3 + 3 + 3$

Break Apart Strategy

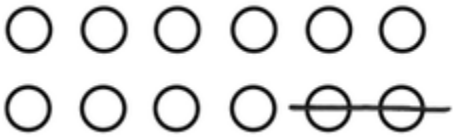


$9 \times 7 = (5 \times 7) + (4 \times 7)$

$= 35 + 28$

$= 63$

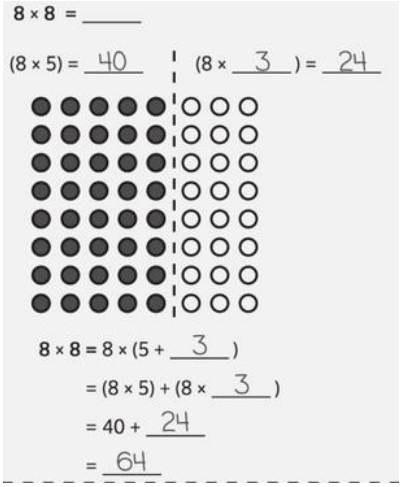
Natasha has 2 boxes of crayons with 6 crayons in each box. As she's coloring, 2 crayons break. How many unbroken crayons does Natasha have left?



$(2 \times 6) - 2 = 10$

$12 - 2 = 10$

Parenthesis means to complete first



Breaking it apart makes it easier to multiply larger facts.

15 x 3 = ?

When you must multiply bigger numbers:

- List the factors for the bigger number
  15 x 1 = 15 3 x 5 = 15
- Rewrite the problem using the factors for the bigger number.
  (3 x 5) x 3
- Move the parenthesis to a smaller fact
  (3 x 3) x 5
- Solve the parenthesis
  (3 x 3) = 9
- Solve the rest of the problem
  9 x 5 = 45
  So 15 x 3 = 45

Multiples of 9

tens place increases by 1

09
18
27
36
45
54
63
72
81
90

ones place decreases by 1

Also, if you add the numbers in the tens place to the numbers in the ones place the total will be 9.

Any number multiplied/divided by 1 equals the number.

10 x 1 = 10 18 ÷1 = 18

Any number multiplied/divided by 0 equals 0.

9 x 0 = 0 12 ÷ 0 = 0

2 even factors	2 odd factors	1 even and 1 odd factor
2 × 10 = 20	5 × 3 = 15	5 × 4 = 20
8 × 6 = 48	9 × 3 = 27	8 × 9 = 72

even × even = even

odd × even = even

odd × odd = odd

ALL EVEN NUMBERS HAVE A 0, 2, 4, 6, AND 8 IN THE ONES PLACE.

Odd numbers are numbers **1 more or 1 less than even numbers**. For example: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19

$$\begin{aligned} 20 \times 3 &= (10 \times 2) \times 3 \\ &= 10 \times (2 \times 3) \\ &= 10 \times 6 \\ &= 60 \end{aligned}$$