Name _____

Math Facts Book

Multiplication and Division

Vocabulary

When we multiply two numbers, the answer is the _____.

8 x 3 = 24 (24 is the _____.)

Each number that we are multiplying is called a _____.

36 = 4 x 9 (4 and 9 are the _____.)

When we divide two numbers, the answer is the _____.

7 = 42 ÷ 6 (7 is the _____.)

The number we are dividing is called the _____.

50 ÷ 5 = 10 (50 is the _____.)

The number BY which we are dividing is called the _____.

2 = 16 ÷ 8 (8 is the _____.)

Doubles

In each set of four lines below:
Write a doubles multiplication fact.
Write its turnaround fact.
Then, write two division facts that are related.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

What do you notice about the products above? Why does this happen?

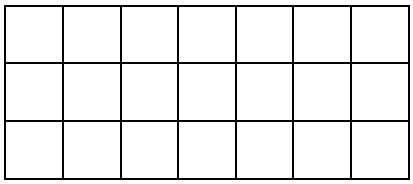
Tens

In each set of four lines below:
Write a tens multiplication fact.
Write its turnaround fact.
Then, write two division facts that are related.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

What happens when you multiply by 10? Divide by 10? How do you know when 10 will be the quotient?

Arrays



Write 2 multiplication sentences that represent the area of this array (the number of squares).

_____ _____

Write two division sentences that are related to the multiplication sentences above.

_____ _____

Draw an array to represent 8 x 4 = 32.

Write the turnaround fact for 8 x 4 = 32. _____

Write two division sentences that are related to the multiplication sentences above.

_____ _____

Draw one straight line that separates one set of 8 from the others in your array above. What two new multiplication facts are represented by the two parts of this array?

_____ _____

Zeros

Write all of the multiplication facts that match this strategy.
Use turnaround facts also.
Write one division fact that is related to each pair of multiplication facts.

_____ _____

_____

_____ _____

_____

_____ _____

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_____ _____

_____

_____ _____

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_____ _____

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_____ _____

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_____ _____

_____

What do you notice about the products above? Why does this happen?

Why can we only write one division fact in each set?

Ones

In each set of four lines below:
Write a ones multiplication fact.
Write its turnaround fact.
Then, write two division facts that are related.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

What happens when you multiply by 1? Why? Divide by 1? Why? How do you know when 1 will be the quotient?

Fives

In each set of four lines below:
Write a fives multiplication fact.
Write its turnaround fact.
Then, write two division facts that are related.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

What do you notice about the last digit in each of the products above?

How can you find a multiple of 5 if you know the multiple of 10?

Nines

Write the nines fact that you can find by knowing each tens fact below.
Use turnaround facts also.
Then, write two division facts that are related.

1 x 10 = 10 _____ _____

_____ _____

2 x 10 = 20 _____ _____

_____ _____

3 x 10 = 30 _____ _____

_____ _____

4 x 10 = 40 _____ _____

_____ _____

5 x 10 = 50 _____ _____

_____ _____

6 x 10 = 60 _____ _____

_____ _____

7 x 10 = 70 _____ _____

_____ _____

8 x 10 = 80 _____ _____

_____ _____

9 x 10 = 90 _____ _____

_____ _____

10 x 10 = 100_____ _____

_____ _____

How can you find a multiple of 9 if you know the multiple of 10?

Squares

Write each squares multiplication fact and the division fact that matches it.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Draw arrays to represent two of the multiplication facts above.

What do you notice about the length and width of each array?

Doubles and one more set: Threes

Write the threes fact that you can find by knowing each doubles fact below.
Use turnaround facts also.
Then, write two division facts that are related.

1 x 2 = 2 _____ _____

_____ _____

2 x 2 = 4 _____ _____

_____ _____

3 x 2 = 6 _____ _____

_____ _____

4 x 2 = 8 _____ _____

_____ _____

5 x 2 = 10 _____ _____

_____ _____

6 x 2 = 12 _____ _____

_____ _____

7 x 2 = 14 _____ _____

_____ _____

8 x 2 = 16 _____ _____

_____ _____

9 x 2 = 18 _____ _____

_____ _____

10 x 2 = 20 _____ _____

_____ _____

How can you find a multiple of 3 if you know the multiple of 2? It might help to draw an array to explain.

Squares and one more set

Write the squares and one more set fact that you can find by knowing each squares fact below. Use turnaround facts also.
Then, write two division facts that are related.

1 x 1 = 1 _____ _____

_____ _____

2 x 2 = 4 _____ _____

_____ _____

3 x 3 = 9 _____ _____

_____ _____

4 x 4 = 16 _____ _____

_____ _____

5 x 5 = 25 _____ _____

_____ _____

6 x 6 = 36 _____ _____

_____ _____

7 x 7 = 49 _____ _____

_____ _____

8 x 8 = 64 _____ _____

_____ _____

9 x 9 = 81 _____ _____

_____ _____

10 x 10 = 100 _____ _____

_____ _____

Draw an array of one of the squares facts and an array of the squares and one more set fact that matches it. What is the same and different about the two arrays?

Doubles doubled: fours

Write the fours fact that you can find by knowing each doubles fact below.
Use turnaround facts also.
Then, write two division facts that are related.

1 x 2 = 2 _____ _____

_____ _____

2 x 2 = 4 _____ _____

_____ _____

3 x 2 = 6 _____ _____

_____ _____

4 x 2 = 8 _____ _____

_____ _____

5 x 2 = 10 _____ _____

_____ _____

6 x 2 = 12 _____ _____

_____ _____

7 x 2 = 14 _____ _____

_____ _____

8 x 2 = 16 _____ _____

_____ _____

9 x 2 = 18 _____ _____

_____ _____

10 x 2 = 20 _____ _____

_____ _____

How can you find a multiple of 4 if you know the multiple of 2? It might help to draw an array to explain.

Two apart facts

Write the two apart fact that you can find by knowing each squares fact below. Use turnaround facts also.
Then, write two division facts that are related.

1 x 1 = 1 _____ _____

_____ _____

2 x 2 = 4 _____ _____

_____ _____

3 x 3 = 9 _____ _____

_____ _____

4 x 4 = 16 _____ _____

_____ _____

5 x 5 = 25 _____ _____

_____ _____

6 x 6 = 36 _____ _____

_____ _____

7 x 7 = 49 _____ _____

_____ _____

8 x 8 = 64 _____ _____

_____ _____

9 x 9 = 81 _____ _____

_____ _____

10 x 10 = 100 _____ _____

_____ _____

Draw an array of one of the squares facts and an array of the two apart fact that matches it. How are the two arrays related?

How can you find the product for a two apart fact if you know the squares?

Facts to Practice

What facts are hard for me to remember?

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Answer key
On following pages

Note that some tasks have multiple possible answers.

For example, 5 x 6 = 30 and 30 = 5 x 6 are acceptable as the same answer.

Mathematically speaking, there is no difference between 5 x 6 = 30 and 6 x 5 = 30.
However, since we want to encourage understanding of the commutative property ("turnaround facts"), these are counted as two different answers in most of the activities.

Also, a "related" division fact means the factors and the product are the same in both facts. For example:
9 x 5 = 45 and 45 ÷ 5 = 9 would be "related" facts.

**Lists of facts that go with a given strategy DO NOT have to be listed in the order in the answer key!! However, turnaround facts should be paired together, and related division facts should be paired together.

Vocabulary

When we multiply two numbers, the answer is the product_____.

8 x 3 = 24 (24 is the product_____.)

Each number that we are multiplying is called a factor_____.

36 = 4 x 9 (4 and 9 are the factors_____.)

When we divide two numbers, the answer is the quotient_____.

7 = 42 ÷ 6 (7 is the quotient_____.)

The number we are dividing is called the dividend____.

50 ÷ 5 = 10 (50 is the dividend_____.)

The number BY which we are dividing is called the divisor_____.

2 = 16 ÷ 8 (8 is the divisor_____.)

Doubles

In each set of four lines below:
Write a doubles multiplication fact.
Write its turnaround fact.
Then, write two division facts that are related.

0 x 2 = 0_____	2 x 0 = 0_____
0 ÷ 2 = 0_____	_____
1 x 2 = 2_____	2 x 1 = 2_____
2 ÷ 2 = 1_____	2 ÷ 1 = 2_____
2 x 2 = 4_____	_____
4 ÷ 2 = 2_____	_____
3 x 2 = 6_____	2 x 3 = 6_____
6 ÷ 2 = 3_____	6 ÷ 3 = 2_____
4 x 2 = 8_____	2 x 4 = 8_____
8 ÷ 2 = 4_____	8 ÷ 4 = 2_____

5 x 2 = 10_____	2 x 5 = 10_____
10 ÷ 2 = 5_____	10 ÷ 5 = 2_____
6 x 2 = 12_____	2 x 6 = 12_____
12 ÷ 2 = 6_____	12 ÷ 6 = 2_____
7 x 2 = 14_____	2 x 7 = 14_____
14 ÷ 2 = 7_____	14 ÷ 7 = 2_____
8 x 2 = 16_____	2 x 8 = 16_____
16 ÷ 2 = 8_____	16 ÷ 8 = 2_____
9 x 2 = 18_____	2 x 9 = 18_____
18 ÷ 2 = 9_____	18 ÷ 9 = 2_____
10 x 2 = 20_____	2 x 10 = 20_____
20 ÷ 2 = 10_____	20 ÷ 10 = 2_____

What do you notice about the products above? Why does this happen?

The products are all even. This is because each double is like adding the factor twice, and when we do this, each number has a partner. (or something to this effect)

Tens

In each set of four lines below:
Write a tens multiplication fact.
Write its turnaround fact.
Then, write two division facts that are related.

0 x 10 = 0_____	10 x 0 = 0_____
0 ÷ 10 = 0_____	_____
1 x 10 = 10_____	10 x 1 = 10_____
10 ÷ 10 = 1_____	10 ÷ 1 = 10_____
2 x 10 = 20_____	10 x 2 = 20_____
20 ÷ 10 = 2_____	20 ÷ 2 = 10_____
3 x 10 = 30_____	10 x 3 = 30_____
30 ÷ 10 = 3_____	30 ÷ 3 = 10_____
4 x 10 = 40_____	10 x 4 = 40_____
40 ÷ 10 = 4_____	40 ÷ 4 = 10_____
5 x 10 = 50_____	10 x 5 = 50_____
50 ÷ 10 = 5_____	50 ÷ 5 = 10_____

6 x 10 = 60_____	10 x 6 = 60_____
60 ÷ 10 = 6_____	60 ÷ 6 = 10_____
7 x 10 = 70_____	10 x 7 = 70_____
70 ÷ 10 = 7_____	70 ÷ 7 = 10_____
8 x 10 = 80_____	10 x 8 = 80_____
80 ÷ 10 = 8_____	80 ÷ 8 = 10_____
9 x 10 = 90_____	10 x 9 = 90_____
90 ÷ 10 = 9_____	90 ÷ 9 = 10_____
10 x 10 = 100_____	_____
100 ÷ 10 = 10_____	_____

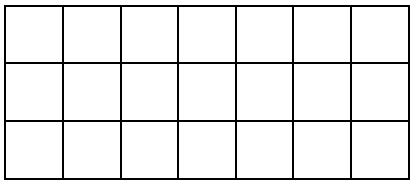
What happens when you multiply by 10? Divide by 10? How do you know when 10 will be the quotient?

When you multiply by 10, the product looks like the factor (not 10) with an extra 0 at the end.

When you divide by 10, the quotient looks like the dividend without a 0 at the end.

You know that 10 will be the quotient when the divisor looks like the dividend without a 0 at the end.

Arrays



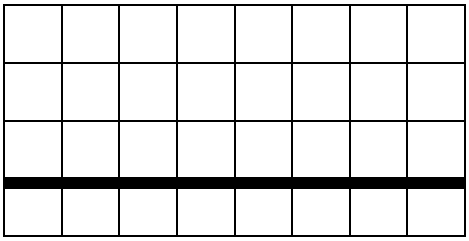
Write 2 multiplication sentences that represent the area of this array (the number of squares).

7 x 3 = 21_____ 3 x 7 = 21_____

Write two division sentences that are related to the multiplication sentences above.

21 ÷ 7 = 3_____ 21 ÷ 3 = 7_____

Draw an array to represent 8 x 4 = 32.



Write the turnaround fact for 8 x 4 = 32. 4 x 8 = 32_____

Write two division sentences that are related to the multiplication sentences above.

32 ÷ 8 = 4_____ 32 ÷ 4 = 8_____

Draw one straight line that separates one set of 8 from the others in your array above. What two new multiplication facts are represented by the two parts of this array?

3 x 8 = 24 or 8 x 3 = 24 1 x 8 = 8 or 8 x 1 = 8

Zeros

Write all of the multiplication facts that match this strategy.
Use turnaround facts also.
Write one division fact that is related to each pair of multiplication facts.

0 x 0 = 0_____ _____

_____

1 x 0 = 0_____ 0 x 1 = 0_____

0 ÷ 1 = 0_____

2 x 0 = 0_____ 0 x 2 = 0_____

0 ÷ 2 = 0_____

3 x 0 = 0_____ 0 x 3 = 0_____

0 ÷ 3 = 0_____

4 x 0 = 0_____ 0 x 4 = 0_____

0 ÷ 4 = 0_____

5 x 0 = 0_____ 0 x 5 = 0_____

0 ÷ 5 = 0_____

$6 \times 0 = 0$_____ $0 \times 6 = 0$_____

$0 \div 6 = 0$_____

$7 \times 0 = 0$_____ $0 \times 7 = 0$_____

$0 \div 7 = 0$_____

$8 \times 0 = 0$_____ $0 \times 8 = 0$_____

$0 \div 8 = 0$_____

$9 \times 0 = 0$_____ $0 \times 9 = 0$_____

$0 \div 9 = 0$_____

$10 \times 0 = 0$_____ $0 \times 10 = 0$_____

$0 \div 10 = 0$_____

What do you notice about the products above? Why does this happen?

The products are all 0. This is because we are finding groups of nothing, or no groups of some number.

Why can we only write one division fact in each set?

We cannot divide by 0. (If we tried to, it would be like sharing some number among 0 groups, or finding out how many times 0 would go into that number. We can't do this! If $7 \div 0 = 0$, then 0×0 would be 7. If $7 \div 0 = 7$, then 7×0 would be 7. Impossible!)

Ones

In each set of four lines below:
Write a ones multiplication fact.
Write its turnaround fact.
Then, write two division facts that are related.

0 x 1 = 0	1 x 0 = 0
0 ÷ 1 = 0	
1 x 1 = 1	
1 ÷ 1 = 1	
2 x 1 = 2	1 x 2 = 2
2 ÷ 1 = 2	2 ÷ 2 = 1
3 x 1 = 3	1 x 3 = 3
3 ÷ 1 = 3	3 ÷ 3 = 1
4 x 1 = 4	1 x 4 = 4
4 ÷ 1 = 4	4 ÷ 4 = 1
5 x 1 = 5	1 x 5 = 5
5 ÷ 1 = 5	5 ÷ 5 = 1

$6 \times 1 = 6$_____ $1 \times 6 = 6$_____

$6 \div 1 = 6$_____ $6 \div 6 = 1$_____

$7 \times 1 = 7$_____ $1 \times 7 = 7$_____

$7 \div 1 = 7$_____ $7 \div 7 = 1$_____

$8 \times 1 = 8$_____ $1 \times 8 = 8$_____

$8 \div 1 = 8$_____ $8 \div 8 = 1$_____

$9 \times 1 = 9$_____ $1 \times 9 = 9$_____

$9 \div 1 = 9$_____ $9 \div 9 = 1$_____

$10 \times 1 = 10$_____ $1 \times 10 = 10$_____

$10 \div 1 = 10$_____ $10 \div 10 = 1$_____

What happens when you multiply by 1? Why? Divide by 1? Why? How do you know when 1 will be the quotient?

When you multiply by 1, you get the factor you started with because you are finding one group of that factor.

When you divide by 1, you get the factor you started with because you are finding out how many groups of 1 are in the factor.

You know that 1 will be the quotient when you divide a number by itself. (except 0!)

Fives

In each set of four lines below:
Write a fives multiplication fact.
Write its turnaround fact.
Then, write two division facts that are related.

0 x 5 = 0_____	5 x 0 = 0_____
0 ÷ 5 = 0_____	_____
1 x 5 = 5_____	5 x 1 = 5_____
5 ÷ 5 = 1_____	5 ÷ 1 = 5_____
2 x 5 = 10_____	5 x 2 = 10_____
10 ÷ 5 = 2_____	10 ÷ 2 = 5_____
3 x 5 = 15_____	5 x 3 = 15_____
15 ÷ 5 = 3_____	15 ÷ 3 = 5_____
4 x 5 = 20_____	5 x 4 = 20_____
20 ÷ 5 = 4_____	20 ÷ 4 = 5_____
5 x 5 = 25_____	_____
25 ÷ 5 = 5_____	_____

6 x 5 = 30_____	5 x 6 = 30_____
30 ÷ 5 = 6_____	30 ÷ 6 = 5_____
7 x 5 = 35_____	5 x 7 = 35_____
35 ÷ 5 = 7_____	35 ÷ 7 = 5_____
8 x 5 = 40_____	5 x 8 = 40_____
40 ÷ 5 = 8_____	40 ÷ 8 = 5_____
9 x 5 = 45_____	5 x 9 = 45_____
45 ÷ 5 = 9_____	45 ÷ 9 = 5_____
10 x 5 = 50_____	5 x 10 = 50_____
50 ÷ 5 = 10_____	50 ÷ 10 = 5_____

What do you notice about the last digit in each of the products above?

The last digit in each product is either 0 or 5.

How can you find a multiple of 5 if you know the multiple of 10?

The multiples of 5 are half of the multiples of 10. For example, 5 x 2 is 10, which is half of 10 x 2, or 20. (This is because 5 is half of 10.)

Nines

Write the nines fact that you can find by knowing each tens fact below.
Use turnaround facts also.
Then, write two division facts that are related.

1 x 10 = 10	1 x 9 = 9_____	9 x 1 = 9_____
	9 ÷ 9 = 1_____	9 ÷ 1 = 9_____
2 x 10 = 20	2 x 9 = 18_____	9 x 2 = 18_____
	18 ÷ 9 = 2_____	18 ÷ 2 = 9_____
3 x 10 = 30	3 x 9 = 27_____	9 x 3 = 27_____
	27 ÷ 9 = 3_____	27 ÷ 3 = 9_____
4 x 10 = 40	4 x 9 = 36_____	9 x 4 = 36_____
	36 ÷ 9 = 4_____	36 ÷ 4 = 9_____
5 x 10 = 50	5 x 9 = 45_____	9 x 5 = 45_____
	45 ÷ 9 = 5_____	45 ÷ 5 = 9_____
6 x 10 = 60	6 x 9 = 54_____	9 x 6 = 54_____
	54 ÷ 9 = 6_____	54 ÷ 6 = 9_____

7 x 10 = 70	7 x 9 = 63_____	9 x 7 = 63_____
	63 ÷ 9 = 7_____	63 ÷ 7 = 9_____
8 x 10 = 80	8 x 9 = 72_____	9 x 8 = 72_____
	72 ÷ 9 = 8_____	72 ÷ 8 = 9_____
9 x 10 = 90	9 x 9 = 81_____	_____
	81 ÷ 9 = 9_____	_____
10 x 10 = 100	10 x 9 = 90_____	9 x 10 = 90_____
	90 ÷ 9 = 10_____	90 ÷ 10 = 9_____

How can you find a multiple of 9 if you know the multiple of 10?

When you multiply a factor by 10, take one set of this factor away from the multiple of 10, and you will get the multiple of 9. (7 x 9 is 7 x 10, minus 7.)

Squares

Write each squares multiplication fact and the division fact that matches it.

0 x 0 = 0_____	_____
1 x 1 = 1_____	1 ÷ 1 = 1_____
2 x 2 = 4_____	4 ÷ 2 = 2_____
3 x 3 = 9_____	9 ÷ 3 = 3_____
4 x 4 = 16_____	16 ÷ 4 = 4_____
5 x 5 = 25_____	25 ÷ 5 = 5_____
6 x 6 = 36_____	36 ÷ 6 = 6_____
7 x 7 = 49_____	49 ÷ 7 = 7_____
8 x 8 = 64_____	64 ÷ 8 = 8_____
9 x 9 = 81_____	81 ÷ 9 = 9_____
10 x 10 = 100_____	100 ÷ 10 = 10_____

Draw arrays to represent two of the multiplication facts above.

(answers will vary, but the arrays should be squares)

What do you notice about the length and width of each array?

The length and width of each array are equal.

Doubles and one more set: Threes

Write the threes fact that you can find by knowing each doubles fact below.
Use turnaround facts also.
Then, write two division facts that are related.

1 x 2 = 2	1 x 3 = 3_____	3 x 1 = 3_____
	3 ÷ 3 = 1_____	3 ÷ 1 = 3_____
2 x 2 = 4	2 x 3 = 6_____	3 x 2 = 6_____
	6 ÷ 3 = 2_____	6 ÷ 2 = 3_____
3 x 2 = 6	3 x 3 = 9_____	_____
	9 ÷ 3 = 3_____	_____
4 x 2 = 8	4 x 3 = 12_____	3 x 4 = 12_____
	12 ÷ 3 = 4_____	12 ÷ 4 = 3_____
5 x 2 = 10	5 x 3 = 15_____	3 x 5 = 15_____
	15 ÷ 3 = 5_____	15 ÷ 5 = 3_____
6 x 2 = 12	6 x 3 = 18_____	3 x 6 = 18_____
	18 ÷ 3 = 6_____	18 ÷ 6 = 3_____

7 x 2 = 14	7 x 3 = 21_____	3 x 7 = 21_____
	21 ÷ 3 = 7_____	21 ÷ 7 = 3_____
8 x 2 = 16	8 x 3 = 24_____	3 x 8 = 24_____
	24 ÷ 3 = 8_____	24 ÷ 8 = 3_____
9 x 2 = 18	9 x 3 = 27_____	3 x 9 = 27_____
	27 ÷ 3 = 9_____	27 ÷ 9 = 3_____
10 x 2 = 20	10 x 3 = 30_____	3 x 10 = 30_____
	30 ÷ 3 = 10_____	30 ÷ 10 = 3_____

How can you find a multiple of 3 if you know the multiple of 2? It might help to draw an array to explain.

If you know a multiple of 2, you can add one more set of the factor (not 3) to it to get the multiple of 3. For instance, 5 x 2 = 10, so 5 x 3 = 15, which is 10 + 5.

(Student might draw a 2 x 5 array and a 3 x 5 array and note that there is one extra set of 5 in the second one.)

Squares and one more set

Write the squares and one more set fact that you can find by knowing each squares fact below. Use turnaround facts also.
Then, write two division facts that are related.

1 x 1 = 1	1 x 2 = 2_____	2 x 1 = 2_____
	2 ÷ 2 = 1_____	2 ÷ 1 = 2_____
2 x 2 = 4	2 x 3 = 6_____	3 x 2 = 6_____
	6 ÷ 3 = 2_____	6 ÷ 2 = 3_____
3 x 3 = 9	3 x 4 = 12_____	4 x 3 = 12_____
	12 ÷ 4 = 3_____	12 ÷ 3 = 4_____
4 x 4 = 16	4 x 5 = 20_____	5 x 4 = 20_____
	20 ÷ 5 = 4_____	20 ÷ 4 = 5_____
5 x 5 = 25	5 x 6 = 30_____	6 x 5 = 30_____
	30 ÷ 6 = 5_____	30 ÷ 5 = 6_____
6 x 6 = 36	6 x 7 = 42_____	7 x 6 = 42_____
	42 ÷ 7 = 6_____	42 ÷ 6 = 7_____

7 x 7 = 49	7 x 8 = 56_____	8 x 7 = 56_____
	56 ÷ 8 = 7_____	56 ÷ 7 = 8_____
8 x 8 = 64	8 x 9 = 72_____	9 x 8 = 72_____
	72 ÷ 9 = 8_____	72 ÷ 8 = 9_____
9 x 9 = 81	9 x 10 = 90_____	10 x 9 = 90_____
	90 ÷ 10 = 9_____	90 ÷ 9 = 10_____
10 x 10 = 100	10 x 11 = 110_____	11 x 10 = 110_____
	110 ÷ 11 = 10_____	110 ÷ 10 = 11_____

Draw an array of one of the squares facts and an array of the squares and one more set fact that matches it. What is the same and different about the two arrays?

(Answers will vary, but students should draw two arrays, where one array is a square, and the other is the square plus one extra row or column.)

The arrays have the same number of rows (or columns), but the second array has one extra column (or row).

Doubles doubled: fours

Write the fours fact that you can find by knowing each doubles fact below.
Use turnaround facts also.
Then, write two division facts that are related.

1 x 2 = 2	1 x 4 = 4_____	4 x 1 = 4_____
	4 ÷ 4 = 1_____	4 ÷ 1 = 4_____
2 x 2 = 4	2 x 4 = 8_____	4 x 2 = 8_____
	8 ÷ 4 = 2_____	8 ÷ 2 = 4_____
3 x 2 = 6	3 x 4 = 12_____	4 x 3 = 12_____
	12 ÷ 4 = 3_____	12 ÷ 3 = 4_____
4 x 2 = 8	4 x 4 = 16_____	_____
	16 ÷ 4 = 4_____	_____
5 x 2 = 10	5 x 4 = 20_____	4 x 5 = 20_____
	20 ÷ 4 = 5_____	20 ÷ 5 = 4_____
6 x 2 = 12	6 x 4 = 24_____	4 x 6 = 24_____
	24 ÷ 4 = 6_____	24 ÷ 6 = 4_____

7 x 2 = 14	7 x 4 = 28_____	4 x 7 = 28_____
	28 ÷ 4 = 7_____	28 ÷ 7 = 4_____
8 x 2 = 16	8 x 4 = 32_____	4 x 8 = 32_____
	32 ÷ 4 = 8_____	32 ÷ 8 = 4_____
9 x 2 = 18	9 x 4 = 36_____	4 x 9 = 36_____
	36 ÷ 4 = 9_____	36 ÷ 9 = 4_____
10 x 2 = 20	10 x 4 = 40_____	4 x 10 = 40_____
	40 ÷ 4 = 10_____	40 ÷ 10 = 4_____

How can you find a multiple of 4 if you know the multiple of 2? It might help to draw an array to explain.

If you know a multiple of 2, you can just double it to get the multiple of 4.

(Student might draw an array that has 2 rows or columns and then double it to get 4 rows or columns.)

Two apart facts

Write the two apart fact that you can find by knowing each squares fact below. Use turnaround facts also.
Then, write two division facts that are related.

1 x 1 = 1	0 x 2 = 0_____	2 x 0 = 0_____
	0 ÷ 2 = 0_____	_____
2 x 2 = 4	1 x 3 = 3_____	3 x 1 = 3_____
	3 ÷ 3 = 1_____	3 ÷ 1 = 3_____
3 x 3 = 9	2 x 4 = 8_____	4 x 2 = 8_____
	8 ÷ 4 = 2_____	8 ÷ 2 = 4_____
4 x 4 = 16	3 x 5 = 15_____	5 x 3 = 15_____
	15 ÷ 5 = 3_____	15 ÷ 3 = 5_____
5 x 5 = 25	4 x 6 = 24_____	6 x 4 = 24_____
	24 ÷ 6 = 4_____	24 ÷ 4 = 6_____
6 x 6 = 36	5 x 7 = 35_____	7 x 5 = 35_____
	35 ÷ 7 = 5_____	35 ÷ 5 = 7_____

7 x 7 = 49	6 x 8 = 48_____	8 x 6 = 48_____
	48 ÷ 8 = 6_____	48 ÷ 6 = 8_____
8 x 8 = 64	7 x 9 = 63_____	9 x 7 = 63_____
	63 ÷ 9 = 7_____	63 ÷ 7 = 9_____
9 x 9 = 81	8 x 10 = 80_____	10 x 8 = 80_____
	80 ÷ 10 = 8_____	80 ÷ 8 = 10_____
10 x 10 = 100	9 x 11 = 99_____	11 x 9 = 99_____
	99 ÷ 11 = 9_____	99 ÷ 9 = 11_____

Draw an array of one of the squares facts and an array of the two apart fact that matches it. How are the two arrays related?

(Answers will vary, but student should draw a square array and the matching two apart array.)

The two apart array has one more row (or column) and one less column (or row) than the square array. It has 1 less square (or unit) than the square array.

How can you find the product for a two apart fact if you know the squares?

Take the number in between the two factors; square it, and subtract 1.