

A PRIMARY ARITHMETIC WORKBOOK



A Primary Arithmetic is a math book published in the 1880's and was authored by *Edward Olney*. After looking at a lot of public domain math books, I liked the set up of this one.

My daughter wanting a 'math book' like her cousins, I set out to turn this into one. ☺ This book is the result. My hope in sharing it with others is that it will be useful in some way to other homeschoolers.

Part I consists of Numbers, Addition, Subtraction, Multiplication, Division, and Fractions. It is designed for First and Second Grades (years)

Part II consists of a condensed course for practical life, including barter, and "casting interest." It is designed for Third and Fourth grades.

Enjoy,

Cynthia

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A PRIMARY ARITHMETIC WORKBOOK PART I.

THE FUNDAMENTAL COMBINATION OF THE
DIGITS, AND A PRIMARY COURSE IN COMMON
FRACTIONS AND DENOMINATE NUMBERS.

FOR FIRST AND SECOND GRADES (YEARS).

"This part is designed to give the pupil at the end of his second year, *i.e.*, BY THE TIME HE IS ABLE TO READ, a good intelligent knowledge of the Addition, Subtraction, Multiplication, and Division Tables; a knowledge of the nature of Common Fractions, and of the Common Denominations of Denominate Numbers."

Multiplication

Multiplication

Multiplication

Purpose: To learn how to find out the product of any number less than 11 multiplied by any number less than 11, and to fix the results to memory; i.e., to learn the multiplication table to 10 times 10.

Method: Learn to find out the product by adding the number to itself the requisite number of times.

First Exercise.

1. If you pick a cherry and put it in your hand, and then pick another, how many cherries will you have? How many times have you picked 1 cherry? Two times 1 cherry are how many cherries?



2. $1 + 1 =$ how many? How many times 1 are $1 + 1$? Two times 1 are how many?

3. If you pick 1 cherry, then another, and then another, how many times will you have picked a cherry? How many cherries will you have? 3 times 1 cherry are how many cherries?

4. $1 + 1 + 1 =$ how many? How many times 1 are $1 + 1 + 1$? 3 times 1 are how many?

Multiplication

5. If your mother gives you 1 cent each day for 4 days, how many times will she have given you 1 cent? How many cents will you have? 4 times 1 cent are how many cents?

6. $1 + 1 + 1 + 1 =$ how many? How many times 1 are $1 + 1 + 1 + 1$? 4 times 1 are how many?

7. If Jane breaks 1 needle each day, how many does she break in a week (6 days)? How many are 6 times 1?

8. The sign \times means *times*, and we read 3×2 , three times two.

9. Read 4×1 , 3×1 , 5×2 , 6×4 .

10. Read 3×2 , 4×7 , 5×6 , 8×9 , 7×4 .

| | |
|---|-----------------|
| $1 =$ | $1 \times 1 =$ |
| $1 + 1 =$ | $2 \times 1 =$ |
| $1 + 1 + 1 =$ | $3 \times 1 =$ |
| $1 + 1 + 1 + 1 =$ | $4 \times 1 =$ |
| $1 + 1 + 1 + 1 + 1 =$ | $5 \times 1 =$ |
| $1 + 1 + 1 + 1 + 1 + 1 =$ | $6 \times 1 =$ |
| $1 + 1 + 1 + 1 + 1 + 1 + 1 =$ | $7 \times 1 =$ |
| $1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 =$ | $8 \times 1 =$ |
| $1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 =$ | $9 \times 1 =$ |
| $1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 =$ | $10 \times 1 =$ |

Multiplication

1 1 1 1 1 1 1 1 1 1 0 0
1 2 3 4 5 6 7 8 9 10 1 4

Second Exercise.

1. There are 2 cherries in each bunch, and 2 bunches. How many times 2 cherries are there on the twig? How many cherries are there? 2 times 2 cherries are how many cherries?



2. $2 + 2 =$ how many? How many times 2 is $2 + 2$? $2 \times 2 =$ how many?

3. John stayed out of school 2 days to visit his uncle, 2 days because he was sick, and 2 days he played truant. How many times did he stay out 2 days? How many days did he stay out in all? 3 times 2 days are how many days?

4. $2 + 2 + 2 =$ how many? How many times 2 are $2 + 2 + 2$? 3×2 are how many?

5. Jane found 2 eggs on Monday, 2 on Tuesday, 2 on Wednesday, and 2 on Thursday. How many times did she find 2 eggs? How many did she find in all? 4 times 2 eggs are how many eggs?

6. $2 + 2 + 2 + 2 =$ how many? How many times 2 is $2 + 2 + 2 + 2$?
 $4 \times 2 =$ how many?

Multiplication

7. 4 times 2 are how many? If 4 times 2 are 8, how many are 5 times 2?
How many 2's must you take with 4 times 2, or 8, to make 5 times 2?

8. 6 times 2 are 12. How many are 7 times 2? How many 2's must you put
with 6 times 2, or 12, to make 7 times 2?

9. 8 times 2 are 16. How many are 9 times 2?

$2 + 2 =$

$2 + 2 + 2 =$

$2 + 2 + 2 + 2 =$

$2 + 2 + 2 + 2 + 2 =$

$2 + 2 + 2 + 2 + 2 + 2 =$

$2 + 2 + 2 + 2 + 2 + 2 + 2 =$

$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 =$

$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 =$

$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 =$

$2 \times 2 =$

$3 \times 2 =$

$4 \times 2 =$

$5 \times 2 =$

$6 \times 2 =$

$7 \times 2 =$

$8 \times 2 =$

$9 \times 2 =$

$10 \times 2 =$

| | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|----------|----------|
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 1 | 2 |
| <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> | <u>10</u> | <u>2</u> | <u>2</u> | <u>2</u> |

Multiplication

Third Exercise.

1. Frank spent 3 cents each day in the week except Sunday. How many times did he spend 3 cents? How many cents did he spend in all? 6 times 3 cents are how many cents?



2. $3 + 3 + 3 + 3 + 3 + 3 =$ how many? How many times 3 is $3 + 3 + 3 + 3 + 3 + 3$? 6×3 are how many?

3. George reads 3 pages each day of the week. How many times 3 pages does he read? How many are 7×3 ?

4. $3 + 3 + 3 + 3 + 3 + 3 + 3 =$ how many? How many times 3 is $3 + 3 + 3 + 3 + 3 + 3 + 3$? 7 times 3 are how many?

5. James goes fishing each day for 4 days and catches 0 fish each day. How many does he catch in all? How many are 4 times 0? 5 times 0?

Multiplication

6. 4 times 3 are 12. How many more 3's are 5 times 3 than 4 times 3? How many are 5 times 3?

7. 6 times 3 are 18. How many are 7 times 3?

8. $8 \times 3 = 24$. How many are 9×3 ? 10×3 ?

9. If you know how many 5 times 3 are, how can you tell from this how many 6 times 3 are?

| | |
|---|-----------------|
| $3 + 3 + 3 =$ | $3 \times 3 =$ |
| $3 + 3 + 3 + 3 =$ | $4 \times 3 =$ |
| $3 + 3 + 3 + 3 + 3 =$ | $5 \times 3 =$ |
| $3 + 3 + 3 + 3 + 3 + 3 =$ | $6 \times 3 =$ |
| $3 + 3 + 3 + 3 + 3 + 3 + 3 =$ | $7 \times 3 =$ |
| $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 =$ | $8 \times 3 =$ |
| $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 =$ | $9 \times 3 =$ |
| $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 =$ | $10 \times 3 =$ |

| | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| <u>3</u> | <u>3</u> | <u>3</u> | <u>3</u> | <u>3</u> | <u>3</u> | <u>3</u> | <u>3</u> | <u>0</u> | <u>3</u> | <u>3</u> |
| <u>3</u> | <u>4</u> | <u>6</u> | <u>8</u> | <u>7</u> | <u>4</u> | <u>5</u> | <u>8</u> | <u>5</u> | <u>7</u> | <u>10</u> |

| | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| <u>2</u> | <u>2</u> | <u>1</u> | <u>3</u> | <u>1</u> | <u>2</u> | <u>0</u> | <u>1</u> | <u>2</u> | <u>3</u> |
| <u>7</u> | <u>6</u> | <u>4</u> | <u>5</u> | <u>8</u> | <u>9</u> | <u>3</u> | <u>3</u> | <u>3</u> | <u>3</u> |

Multiplication

Fourth Exercise.



1. How many legs has 1 lamb? Five lambs have how many times as many legs as 1 lamb? How many legs have 5 lambs?
2. How many legs have 4 lambs? How many times as many legs as 1 lamb? How many are 4 times 4?
3. How many legs have 6 lambs? How many times as many legs as 1 lamb? Six times 4 are how many?
4. Seven lambs have how many times as many legs as 1 lamb? 7 lambs have how many legs? $7 \times 4 =$ how many?
5. James bought 8 oranges and gave 4 cents for each. How many times 4 cents did he give for all his oranges? How many are 8 times 4?

Multiplication

6. $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 =$ how many? How many times are $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4$? $9 \times 4 =$ how many?

7. 3 times 4 are 12. How many more 4's are 4 times 4 than 3 times 4? How many are 4×4 ?

8. $5 \times 4 = 20$. How many are 6×4 ? 7×4 ? 8×4 ? 9×4 ? 10×4 ? How many more do you take each time?

| | |
|---|-----------------|
| $4 + 4 + 4 + 4 =$ | $4 \times 4 =$ |
| $4 + 4 + 4 + 4 + 4 =$ | $5 \times 4 =$ |
| $4 + 4 + 4 + 4 + 4 + 4 =$ | $6 \times 4 =$ |
| $4 + 4 + 4 + 4 + 4 + 4 + 4 =$ | $7 \times 4 =$ |
| $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 =$ | $8 \times 4 =$ |
| $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 =$ | $9 \times 4 =$ |
| $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 =$ | $10 \times 4 =$ |

| | | | | | | | | | | |
|----------|----------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|
| <u>4</u> | <u>4</u> | <u>4</u> | <u>4</u> | <u>4</u> | <u>4</u> | <u>4</u> | <u>3</u> | <u>3</u> | <u>3</u> | <u>2</u> |
| <u>5</u> | <u>7</u> | <u>4</u> | <u>6</u> | <u>8</u> | <u>10</u> | <u>9</u> | <u>3</u> | <u>7</u> | <u>4</u> | <u>7</u> |

| | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| <u>1</u> | <u>3</u> | <u>2</u> | <u>3</u> | <u>1</u> | <u>3</u> | <u>0</u> | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> |
| <u>8</u> | <u>6</u> | <u>8</u> | <u>5</u> | <u>5</u> | <u>8</u> | <u>4</u> | <u>4</u> | <u>4</u> | <u>1</u> | <u>1</u> |

Multiplication

Fifth Exercise.



1. How many points has one star? How many have 5 stars? How many have 6 stars? 7 stars? 8 stars? 9 stars? 10 stars?
2. Six stars have how many times as many points as 1 star? Seven stars have how many times as many points as 1 star? Eight stars have how many times as many points as 1 star?
3. $5 + 5 + 5 + 5 + 5 + 5$ are how many times 5? 6 times 5 are how many?
4. $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5$ are how many times 5? 8 times 5 are how many?
5. If John earns 5 cents each day, how many cents can he earn in 6 days? How many times as many can he earn in 6 days as in 1 day? Six times 5 are how many?

Multiplication

6. How many cents can John earn in 10 days, if he can earn 5 cents in 1 day? How many times as many cents can he earn in 10 days as in 1 day?

7. 3 times 5 are how many? How many more are 4 times 5? How many are 4 times 5? 7 times 5? 8 times 5? 9 times 5? 10 times 5? How many more 5's do you take each time?

| | |
|---|-----------------|
| $5 + 5 + 5 + 5 + 5 =$ | $5 \times 5 =$ |
| $5 + 5 + 5 + 5 + 5 + 5 =$ | $6 \times 5 =$ |
| $5 + 5 + 5 + 5 + 5 + 5 + 5 =$ | $7 \times 5 =$ |
| $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 =$ | $8 \times 5 =$ |
| $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 =$ | $9 \times 5 =$ |
| $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 =$ | $10 \times 5 =$ |

| | | | | | | | | | | | |
|----------|----------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|
| 5 | 5 | 5 | 5 | 5 | 5 | 0 | 1 | 2 | 3 | 4 | 5 |
| <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> | <u>10</u> | <u>5</u> | <u>5</u> | <u>5</u> | <u>5</u> | <u>5</u> | <u>5</u> |

| | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|
| 4 | 3 | 2 | 3 | 4 | 5 | 1 | 0 | 4 | 4 | 4 | 4 |
| <u>7</u> | <u>7</u> | <u>8</u> | <u>8</u> | <u>8</u> | <u>8</u> | <u>8</u> | <u>8</u> | <u>6</u> | <u>9</u> | <u>10</u> | <u>4</u> |



Multiplication

Sixth Exercise.

1. How many petals has one lily? How many times as many have 7 lilies? How many petals have 7 lilies? 7 times 6 are how many?



2. If 1 lily has 6 petals, how many petals have 8 lilies? How many have 9 lilies? How many times 6 petals have 10 lilies? How many petals have 10 lilies?

3. If James buys 6 oranges for 6 cents apiece, how many cents must he pay for all?

4. How many times as much must James pay for 9 oranges as for 1? How much must he pay for 9 oranges if 1 orange is worth 6 cents?

5. $6 + 6 + 6 + 6 + 6 + 6$ are how many times 6? 6 times 6 are how many?

6. If each of 8 boys has 6 nuts, how many have they all? How many times 6 nuts have they? 8 times 6 nuts are how many nuts?

Multiplication

7. 2 times 6 are 12. How many more 6's must you take to make 3 times 6? How many are 3 times 6? How many more are 4 times 6? How many are 4 times 6?

8. $5 \times 6 = 30$. How many are 6×6 ? 7×6 ?

9. $8 \times 6 = 48$. How many are 9×6 ? 10×6 ?

10. When you know how many 7 times 6 are, how do you find out how many 8 times 6 are?

| | |
|---|-----------------|
| $6 + 6 + 6 + 6 + 6 + 6 =$ | $6 \times 6 =$ |
| $6 + 6 + 6 + 6 + 6 + 6 + 6 =$ | $7 \times 6 =$ |
| $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 =$ | $8 \times 6 =$ |
| $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 =$ | $9 \times 6 =$ |
| $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 =$ | $10 \times 6 =$ |

| | | | | | | | | | | | |
|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 6 | 6 | 6 | 6 | 6 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| <u>9</u> | <u>10</u> | <u>7</u> | <u>6</u> | <u>8</u> | <u>6</u> | <u>6</u> | <u>6</u> | <u>6</u> | <u>6</u> | <u>6</u> | <u>6</u> |

Multiplication

Seventh Exercise.

1. There are 7 days in one week. How many times as many days are there in 4 weeks? How many days in 4 weeks? How many days in 2 weeks? How many in 6 weeks?

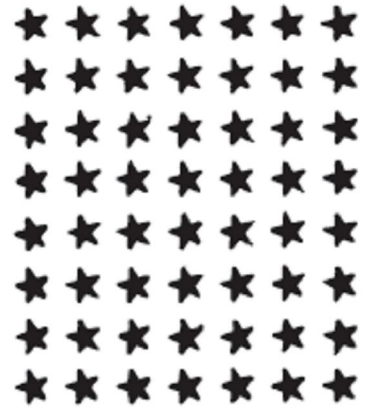
2. How many days are there in 8 weeks? Why? How many days in 9 weeks? Why? How many days in 10 weeks? Why?

3. If Jane finds 7 eggs each day, how many will she find in 6 days? Why?

4. $7 + 7 =$ how many? $7 + 7$ are how many times 7? 2 times 7 are how many?

Multiplication

5. How many times 7 stars are there here? How many stars in a row from left to right? How many rows? How many times as many stars are there in 8 rows as there are in 1 row? 8 times 7 stars are how many stars?



6. How many stars are there in 7 of the rows from left to right? Why?

7. If 3 times 7 are 21, how many are 4 times 7?

8. If 5 times 7 are 35, how many are 6 times 7?

9. How many more are 8 times 7 than 7 times 7?

10. $4 \times 7 = 28$. How many are 5×7 ? 6×7 ? 7×7 ?

| | |
|---|-----------------|
| $7 + 7 + 7 + 7 + 7 + 7 + 7 =$ | $7 \times 7 =$ |
| $7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 =$ | $8 \times 7 =$ |
| $7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 =$ | $9 \times 7 =$ |
| $7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 =$ | $10 \times 7 =$ |

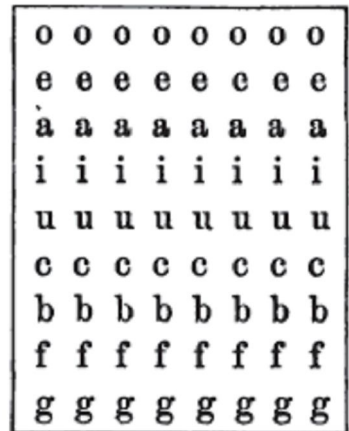
Multiplication

7 7 7 7 0 1 2 3 4 5 6 7
8 9 7 10 7 7 7 7 7 7 7 7

2 3 4 5 6 7 8 7 5 4 6 3
3 4 5 6 7 4 3 7 5 4 6 3

Eighth Exercise.

1. How many o's are there in a row? How many e's?
 How many b's? How many letters in each row? How
 many rows? How many times 8 letters are there?
 How many letters in all? 9 times 8 letters are how
 many letters?



2. If we write a row of 8 m's under the g's, how many rows of letters will
 there be? How many times 8 letters? 10 times 8 letters are how many
 letters?

3. If we cover up the row of g's how many rows of letters will there be? How
 many times 8 letters? $8 \times 8 =$ how many?

4. If there are 9 boys, and each boy has 8 cents, how many times 8 cents
 have they all? How many cents have they all? 9 times 8 are how many?

Multiplication

5. If there are 10 girls in the class, and each girl has 8 buttons on her dress, how many buttons are there on all their dresses? How many times 8 buttons are there? 10 times 8 are how many?

6. $2 \times 8 = 16$. How many are 3×8 ? 4×8 ? 5×8 ? 6×8 ? 7×8 ?

| | |
|---|-----------------|
| $8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 =$ | $8 \times 8 =$ |
| $8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 =$ | $9 \times 8 =$ |
| $8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 =$ | $10 \times 8 =$ |

| | | | | | | | | | | | |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 8 | 8 | 8 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <u>10</u> | <u>8</u> | <u>9</u> | <u>8</u> | <u>8</u> | <u>8</u> | <u>8</u> | <u>8</u> | <u>8</u> | <u>8</u> | <u>8</u> | <u>8</u> |

Ninth Exercise.

1. How many branches has this plant? How many leaves on each branch? How many times 9 leaves are there on the plant? 10 times 9 leaves are how many leaves?



2. If you were to break off the lowest branch, how many branches would be left? How many leaves? $9 \times 9 =$ how many?

Multiplication

3. If you were to break off two of the lower branches, how many branches would remain? How many leaves? $8 \times 9 =$ how many?

4. If you were to break off 3 of the branches, how many branches would remain? How many leaves? 7 times 9 are how many?

5. How many fingers has a boy on both hands, with his thumbs? How many have 10 boys? 10 tens make what?

6. How many fingers have 8 boys? 7 boys? 6 boys? 9 boys?

7. If a boy earns 10 cents each day, how many cents does he earn in 2 days? 3 days? 6 days? 8 days? 10 days? $10 \times 10 =$ how many?



Multiplication

8. $2 \times 9 = 18$. $3 \times 9 = ?$ $4 \times 9 = ?$ $5 \times 9 = 45$. $6 \times 9 = ?$ $7 \times 9 = ?$ $8 \times 9 = ?$

| | |
|--|------------------|
| $9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 =$ | $9 \times 9 =$ |
| $9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 =$ | $10 \times 9 =$ |
| $10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 =$ | $10 \times 10 =$ |
| $10 + 10 =$ | |

| | | | | | | | | | | | | |
|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 9 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| <u>9</u> | <u>10</u> | <u>9</u> | <u>9</u> | <u>9</u> | <u>9</u> | <u>9</u> | <u>9</u> | <u>9</u> | <u>9</u> | <u>9</u> | <u>9</u> | <u>9</u> |

| | | | | | | | | | | | |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 10 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| <u>10</u> | <u>10</u> | <u>10</u> | <u>10</u> | <u>10</u> | <u>10</u> | <u>10</u> | <u>10</u> | <u>10</u> | <u>10</u> | <u>10</u> | <u>10</u> |

Tenth Exercise.

1. Here are two piles of money. In the upper there are 5 3-cent pieces. How many cents are in it? 5 times 3 are how many? In the lower are 3 5-cent pieces. How many cents in it? 3 times 5 are how many? In which pile is there the most money? 5 times 3 is the same as what?



Multiplication

2. James earned 3 cents each day for 4 days. How many cents had he? John earned 4 cents each day for 3 days. How many cents had he? Which had the more?

3. 4 times 3 are how many? 3 times 4 are how many? Which is the most, 3 times 4 or 4 times 3?

4. Mary has 10 5-cent pieces and Jane has 5 10-cent pieces. Which has the most? Why?

5. If you count the rows of stars from left to right, how many stars are there in a row? How many rows of 7 stars each? How many stars? If you count the rows of stars down the page, how many stars are there in a row? How many rows of 8 stars each? 8 times 7 are how many? 7 times 8 are how many? Which is the most, 8 times 7 or 7 times 8?



6. 5 times 3 are how many? Then how many are 3 times 5? Why?

Multiplication

7. 6 times 4 are how many? Then 4 times 6 are how many? Why?

8. 7 times 6 are how many? Then 6 times 7 are how many? Why?

Multiplication

$1 \times 2 =$, hence $2 \times 1 =$

$2 \times 2 =$

$1 \times 3 =$, hence $3 \times 1 =$

$2 \times 3 =$, hence $3 \times 2 =$

$3 \times 3 =$

$1 \times 4 =$, hence $4 \times 1 =$

$2 \times 4 =$, hence $4 \times 2 =$

$3 \times 4 =$, hence $4 \times 3 =$
 $4 \times 4 =$

$1 \times 5 =$, hence $5 \times 1 =$

$2 \times 5 =$, hence $5 \times 2 =$

$3 \times 5 =$, hence $5 \times 3 =$

$4 \times 5 =$, hence $5 \times 4 =$

$5 \times 5 =$

$1 \times 6 =$, hence $6 \times 1 =$

$2 \times 6 =$, hence $6 \times 2 =$

$3 \times 6 =$, hence $6 \times 3 =$

$4 \times 6 =$, hence $6 \times 4 =$

$1 \times 8 =$, hence $8 \times 1 =$

$2 \times 8 =$, hence $8 \times 2 =$

$3 \times 8 =$, hence $8 \times 3 =$

$4 \times 8 =$, hence $8 \times 4 =$

$5 \times 8 =$, hence $8 \times 5 =$

$6 \times 8 =$, hence $8 \times 6 =$

$7 \times 8 =$, hence $8 \times 7 =$

$8 \times 8 =$

$1 \times 9 =$, hence $9 \times 1 =$

$2 \times 9 =$, hence $9 \times 2 =$

$3 \times 9 =$, hence $9 \times 3 =$

$4 \times 9 =$, hence $9 \times 4 =$

$5 \times 9 =$, hence $9 \times 5 =$

$6 \times 9 =$, hence $9 \times 6 =$

$7 \times 9 =$, hence $9 \times 7 =$

$8 \times 9 =$, hence $9 \times 8 =$

$9 \times 9 =$

Multiplication

| | | | | | |
|----------------|---------|----------------|-----------------|---------|------------------|
| $5 \times 6 =$ | , hence | $6 \times 5 =$ | $1 \times 10 =$ | , hence | $10 \times 1 =$ |
| | | $6 \times 6 =$ | $2 \times 10 =$ | , hence | $10 \times 2 =$ |
| $1 \times 7 =$ | , hence | $7 \times 1 =$ | $3 \times 10 =$ | , hence | $10 \times 3 =$ |
| $2 \times 7 =$ | , hence | $7 \times 2 =$ | $4 \times 10 =$ | , hence | $10 \times 4 =$ |
| $3 \times 7 =$ | , hence | $7 \times 3 =$ | $5 \times 10 =$ | , hence | $10 \times 5 =$ |
| $4 \times 7 =$ | , hence | $7 \times 4 =$ | $6 \times 10 =$ | , hence | $10 \times 6 =$ |
| $5 \times 7 =$ | , hence | $7 \times 5 =$ | $7 \times 10 =$ | , hence | $10 \times 7 =$ |
| $6 \times 7 =$ | , hence | $7 \times 6 =$ | $8 \times 10 =$ | , hence | $10 \times 8 =$ |
| | | $7 \times 7 =$ | $9 \times 10 =$ | , hence | $10 \times 9 =$ |
| | | | | | $10 \times 10 =$ |

Eleventh Exercise.

1. $6 + 6 + 6 + 6$ are how many times 6? How many are 4 times 6?
2. $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3$ are how many? How many times 3? 8 times 3 are how many?

Multiplication

$1+1=$, hence $2 \times 1=$

$2+2=$, hence $2 \times 2=$

$3+3=$, hence $2 \times 3=$

$4+4=$, hence $2 \times 4=$

$5+5=$, hence $2 \times 5=$

$6+6=$, hence $2 \times 6=$

$7+7=$, hence $2 \times 7=$

$8+8=$, hence $2 \times 8=$

$9+9=$, hence $2 \times 9=$

$10+10=$, hence $2 \times 10=$

$1+1+1=$, hence $3 \times 1=$

$2+2+2=$, hence $3 \times 2=$

$3+3+3=$, hence $3 \times 3=$

$4+4+4=$, hence $3 \times 4=$

$5+5+5=$, hence $3 \times 5=$

$6+6+6=$, hence $3 \times 6=$

$7+7+7=$, hence $3 \times 7=$

$8+8+8=$, hence $3 \times 8=$

$9+9+9=$, hence $3 \times 9=$

$10+10+10=$, hence $3 \times 10=$

Multiplication

3. Fill this table out to 4 times 10, and write in all the results. So also of the following, 5, 6, 7, 8, 9, and 10.

$1+1+1+1=$ _____ , hence $4 \times 1 =$ _____

$2+2+2+2=$ _____ , hence $4 \times 2 =$ _____

$3+3+3+3=$ _____ , hence $4 \times 3 =$ _____

$4+4+4+4=$ _____ , hence $4 \times 4 =$ _____

_____ , hence _____

_____ , hence _____

_____ , hence _____

_____ , hence _____

_____ , hence _____

_____ , hence _____

Multiplication

4.

$1+1+1+1+1=$

, hence $5 \times 1 =$

$2+2+2+2+2=$

, hence $5 \times 2 =$

, hence

, hence

, hence

, hence

, hence

, hence

, hence

, hence

Multiplication

5.

$1+1+1+1+1+1=$

, hence $6 \times 1 =$

$2+2+2+2+2+2=$

, hence $6 \times 2 =$

, hence

, hence

, hence

, hence

, hence

, hence

, hence

, hence

Multiplication

6.

$1+1+1+1+1+1+1=$

, hence $7 \times 1 =$

$2+2+2+2+2+2+2=$

, hence $7 \times 2 =$

, hence

, hence

, hence

, hence

, hence

, hence

, hence

, hence

Multiplication

7.

$1+1+1+1+1+1+1+1=$

, hence $8 \times 1 =$

$2+2+2+2+2+2+2+2=$

, hence $8 \times 2 =$

, hence

, hence

, hence

, hence

, hence

, hence

, hence

, hence

Multiplication

8.

$$1+1+1+1+1+1+1+1+1=$$

, hence $9 \times 1 =$

$$2+2+2+2+2+2+2+2+2=$$

, hence $9 \times 2 =$

, hence

, hence

, hence

, hence

, hence

, hence

, hence

, hence

Multiplication

9.

$$1+1+1+1+1+1+1+1+1+1=$$

, hence $10 \times 1 =$

$$2+2+2+2+2+2+2+2+2+2=$$

, hence $10 \times 2 =$

, hence

, hence

, hence

, hence

, hence

, hence

, hence

, hence

Multiplication

Twelfth Exercise.

1. Repeat the 2's of the multiplication table 5 times, thus:

- 1 times 2 is _____.
- 2 times 2 are _____.
- 3 times 2 are _____, etc.



2. Repeat the 2's 5 times in this way:

- 2 times 1 are _____.
- 2 times 2 are _____.
- 2 times 3 are _____, etc.



3. Repeat the 3's 5 times thus:

- 1 times 3 is _____.
- 2 times 2 are _____.
- 3 times 3 are _____, etc.



4. Repeat the 3's 5 times thus:

- 3 times 1 are _____.
- 3 times 2 are _____.
- 3 times 3 are _____, etc.



5. Answer the following 5 times.

| | | | | | | |
|------|------|------|------|------|------|------|
| 2x3? | 4x2? | 2x7? | 7x2? | 3x1? | 6x3? | 5x3? |
| 3x5? | 4x3? | 3x4? | 2x8? | 8x2? | 7x3? | 2x7? |
| 1x2? | 1x3? | 5x2? | 3x5? | 9x3? | 9x2? | 3x9? |

6. If 1 orange costs 4 cents, how many cents will 3 oranges cost?
(If 1 orange cost 4 cents, 3 oranges will cost 3 times 4 cents, or 12 cents.)

7. If 1 pencil costs 5 cents, how many cents will 3 pencils cost?

Multiplication

8. If a boy learns 2 lessons each day, how many lessons does he learn in 6 days? In 9 days?

9. There are 7 days in one week. How many days are there in 2 weeks? In 3 weeks?

Thirteenth Exercise.

1. Repeat the 4's 5 times in each of the two ways, thus:

| | |
|----------------------|----------------------|
| 1 time 4 is _____. | 4 times 1 are _____. |
| 2 times 4 are _____. | 4 times 2 are _____. |
| 3 times 4 are _____. | 4 times 3 are _____. |
| etc., etc. | etc., etc. |

2. Repeat the 5's 5 times in each of the tow ways, thus:

| | |
|----------------------|----------------------|
| 1 time 5 is _____. | 5 times 1 are _____. |
| 2 times 5 are _____. | 5 times 2 are _____. |
| 3 times 5 are _____. | 5 times 3 are _____. |
| etc., etc. | etc., etc. |

3. Repeat the 6's 5 times in each of the two ways, thus:

| | |
|----------------------|----------------------|
| 1 time 6 is _____. | 6 times 1 are _____. |
| 2 times 6 are _____. | 6 times 2 are _____. |
| 3 times 6 are _____. | 6 times 3 are _____. |
| etc., etc. | etc., etc. |

Multiplication

4. Multiply.

| | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 6 | 4 | 7 | 8 | 9 | 6 | 7 | 8 | 5 | 4 | 6 | 9 |
| <u>4</u> | <u>7</u> | <u>5</u> | <u>6</u> | <u>6</u> | <u>7</u> | <u>6</u> | <u>5</u> | <u>8</u> | <u>9</u> | <u>9</u> | <u>6</u> |

| | | | | | | | | | | | |
|----------|----------|----------|-----------|----------|-----------|-----------|----------|----------|----------|----------|----------|
| 7 | 5 | 9 | 6 | 6 | 4 | 5 | 10 | 2 | 6 | 6 | 5 |
| <u>6</u> | <u>7</u> | <u>4</u> | <u>10</u> | <u>8</u> | <u>10</u> | <u>10</u> | <u>5</u> | <u>4</u> | <u>2</u> | <u>6</u> | <u>5</u> |

5. James worked 7 hours for 5 cents an hour. How much did he earn?

6. John worked 6 hours for 4 cents an hour, and Henry worked 4 hours for 6 cents an hour. Which earned the most?

7. Jane bought 7 oranges for 6 cents each. How much did they cost?

8. Mary bought 4 spools of thread for 5 cents a spool, and gave the clerk 25 cents. How much change should he give her? How much did her thread cost? 25 is how much more than 20?

Multiplication

Fourteenth Exercise.

1. Repeat the 7's 5 times in each of the two ways, thus:

| | |
|---------------------------|---------------------------|
| 1 time 7 is _____. | 7 times 1 are _____. |
| 2 times 7 are _____, etc. | 7 times 2 are _____, etc. |

2. Repeat the 8's 5 times in each of the two ways, thus:

| | |
|---------------------------|---------------------------|
| 1 time 8 is _____. | 8 times 1 are _____. |
| 2 times 8 are _____, etc. | 8 times 2 are _____, etc. |

3. Answer the following 5 times.

| | | | | | | |
|------|------|------|------|------|------|------|
| 8x7? | 8x9? | 6x8? | 7x6? | 8x6? | 9x8? | 9x7? |
| 7x9? | 6x9? | 9x6? | 7x7? | 8x8? | 9x9? | 7x5? |
| 7x4? | 8x3? | 3x8? | 6x3? | 4x6? | 3x7? | 3x9? |

4. If 7 white hens have 8 chickens each, and 8 black hens have 7 chickens each, which have the most chickens, the white hens or the black hens? Why?

5. John earns 6 cents an hour and works 7 hours, and Henry earns 7 cents an hour and works 6 hours. Which earns the most money?

6. Which costs the most, 8 oranges at 9 cents each, or 9 oranges at 8 cents each? Why?

Multiplication

7. In the first column there are 4 words, with 7 letters in each word, and in the second are 7 words, with 4 in each word. In which column are there the most letters? Why?

| | |
|---------------|---------|
| a n s w e r s | l a t e |
| s c h o l a r | g o e s |
| f o l l o w s | s a i l |
| c h i c k e n | c o a t |
| | f i n d |
| | s n o w |
| | r a i n |

Fifteenth Exercise.

1. Repeat the 9's 5 times in each of the two ways, thus:

| | |
|---------------------------|---------------------------|
| 1 time 9 is _____. | 9 times 1 are _____. |
| 2 times 9 are _____, etc. | 9 times 2 are _____, etc. |

2. Repeat the 10's 5 times in each of the two ways, thus:

| | |
|----------------------------|----------------------------|
| 1 time 10 is _____. | 10 times 1 are _____. |
| 2 times 10 are _____, etc. | 10 times 2 are _____, etc. |

3. Answer the following 5 times. Write them on a separate piece of paper.

| | | | | | | |
|-------|-------|-------|------|------|------|------|
| 9x3? | 4x9? | 10x7? | 8x9? | 6x9? | 7x9? | 9x6? |
| 10x3? | 3x10? | 9x8? | 9x6? | 9x7? | 3x9? | 1x9? |

Multiplication

4. Answer the following:

$3 \times 5 =$

$7 \times 8 =$

$6 \times 7 =$

$9 \times 8 =$

$4 \times 7 =$

$7 \times 5 =$

$6 \times 9 =$

$10 \times 8 =$

$5 \times 7 =$

$7 \times 6 =$

$9 \times 6 =$

$8 \times 7 =$

$3 \times 7 =$

$3 \times 2 =$

$5 \times 8 =$

$9 \times 4 =$

$9 \times 3 =$

$4 \times 9 =$

$3 \times 9 =$

$2 \times 8 =$

$3 \times 8 =$

$10 \times 4 =$

$3 \times 10 =$

$10 \times 10 =$

$2 \times 2 =$

$3 \times 3 =$

$4 \times 4 =$

$5 \times 5 =$

$6 \times 6 =$

$7 \times 7 =$

$8 \times 8 =$

$9 \times 9 =$

$10 \times 10 =$

$1 \times 1 =$

$5 \times 0 =$

$0 \times 3 =$

Multiplication

Sixteenth Exercise.

1. How many times must you make 3 stars to have 12 stars? How many times 3 is 12? 4 times 3 are how many?



2. How many times must you make 4 marks to have 20 marks? How many times 4 is 20? 5 times 4 are how many?

3. Three times what number makes 12? Three times what number makes 18?

4. 4 times what number makes 20?

5 times what number makes 30?

7 times what number makes 21?

8 times what number makes 56?

5. Fill in the missing numbers to complete each equation.

$2 \times \underline{\quad\quad\quad} = 2$

$2 \times \underline{\quad\quad\quad} = 6$

$2 \times \underline{\quad\quad\quad} = 8$

$2 \times \underline{\quad\quad\quad} = 4$

$2 \times \underline{\quad\quad\quad} = 10$

$3 \times \underline{\quad\quad\quad} = 21$

$3 \times \underline{\quad\quad\quad} = 15$

$3 \times \underline{\quad\quad\quad} = 18$

$3 \times \underline{\quad\quad\quad} = 12$

$3 \times \underline{\quad\quad\quad} = 3$

$4 \times \underline{\quad\quad\quad} = 20$

$4 \times \underline{\quad\quad\quad} = 16$

$4 \times \underline{\quad\quad\quad} = 4$

$4 \times \underline{\quad\quad\quad} = 12$

$4 \times \underline{\quad\quad\quad} = 24$

Multiplication

$2 \times \underline{\hspace{2cm}} = 14$

$2 \times \underline{\hspace{2cm}} = 20$

$2 \times \underline{\hspace{2cm}} = 18$

$2 \times \underline{\hspace{2cm}} = 16$

$2 \times \underline{\hspace{2cm}} = 12$

$3 \times \underline{\hspace{2cm}} = 9$

$3 \times \underline{\hspace{2cm}} = 27$

$3 \times \underline{\hspace{2cm}} = 6$

$3 \times \underline{\hspace{2cm}} = 30$

$3 \times \underline{\hspace{2cm}} = 24$

$4 \times \underline{\hspace{2cm}} = 40$

$4 \times \underline{\hspace{2cm}} = 8$

$4 \times \underline{\hspace{2cm}} = 36$

$4 \times \underline{\hspace{2cm}} = 28$

$4 \times \underline{\hspace{2cm}} = 32$

6. How many times 5 does it take to make 15? How many 5's are there in 15?

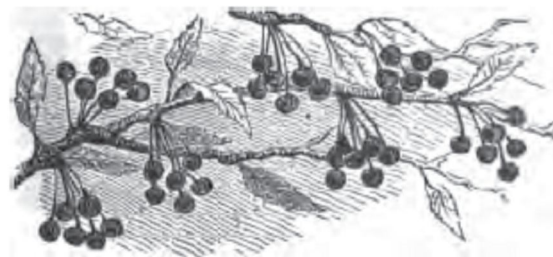
7. How many times 6 does it take to make 24? How many 6's in 24?

Seventeenth Exercise.

1. How many cents do 6 5-cent pieces make? How many 5-cent pieces does it take to make 30 cents? 6 times 5 are how many? 6 times what number makes 30?



2. How many cherries are there in the picture? How many bunches? How many in each bunch? 7 times what number makes 42?



Multiplication

3. Fill in the missing numbers to complete each equation.

$5 \times \underline{\quad\quad\quad} = 15$

$5 \times \underline{\quad\quad\quad} = 10$

$5 \times \underline{\quad\quad\quad} = 20$

$5 \times \underline{\quad\quad\quad} = 35$

$5 \times \underline{\quad\quad\quad} = 50$

$5 \times \underline{\quad\quad\quad} = 45$

$5 \times \underline{\quad\quad\quad} = 5$

$5 \times \underline{\quad\quad\quad} = 25$

$5 \times \underline{\quad\quad\quad} = 30$

$5 \times \underline{\quad\quad\quad} = 40$

$6 \times \underline{\quad\quad\quad} = 18$

$6 \times \underline{\quad\quad\quad} = 12$

$6 \times \underline{\quad\quad\quad} = 42$

$6 \times \underline{\quad\quad\quad} = 48$

$6 \times \underline{\quad\quad\quad} = 24$

$6 \times \underline{\quad\quad\quad} = 30$

$6 \times \underline{\quad\quad\quad} = 6$

$6 \times \underline{\quad\quad\quad} = 54$

$6 \times \underline{\quad\quad\quad} = 36$

$6 \times \underline{\quad\quad\quad} = 60$

$7 \times \underline{\quad\quad\quad} = 28$

$7 \times \underline{\quad\quad\quad} = 14$

$7 \times \underline{\quad\quad\quad} = 35$

$7 \times \underline{\quad\quad\quad} = 63$

$7 \times \underline{\quad\quad\quad} = 70$

$7 \times \underline{\quad\quad\quad} = 42$

$7 \times \underline{\quad\quad\quad} = 21$

$7 \times \underline{\quad\quad\quad} = 7$

$7 \times \underline{\quad\quad\quad} = 56$

$7 \times \underline{\quad\quad\quad} = 49$

4. How many times must John bring in 4 eggs at a time, in order to bring in 24 eggs? How many times 4 does it take to make 24?

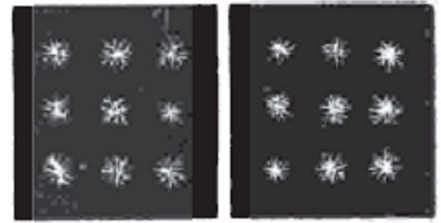
5. If Henry earns 5 cents an hour, how many cents will he earn in 7 hours?

6. If Henry earns 5 cents an hour, how many hours will it take him to earn 35 cents? Why?

Multiplication

Eighteenth Exercise.

1. Here are two squares of black glass, with 9 flakes of snow on each. How many squares would it take to have 72 flakes of snow? 8 times 9 are how many?



2. A class of boys had 90 fingers, including their thumbs. How many boys were there in the class? How many 10's does it take to make 90? 9 times 10 are how many?

3. Fill in the missing numbers to complete each equation.

$8 \times \underline{\hspace{2cm}} = 16$

$8 \times \underline{\hspace{2cm}} = 40$

$8 \times \underline{\hspace{2cm}} = 24$

$8 \times \underline{\hspace{2cm}} = 56$

$8 \times \underline{\hspace{2cm}} = 64$

$8 \times \underline{\hspace{2cm}} = 8$

$8 \times \underline{\hspace{2cm}} = 72$

$8 \times \underline{\hspace{2cm}} = 32$

$8 \times \underline{\hspace{2cm}} = 80$

$8 \times \underline{\hspace{2cm}} = 48$

$9 \times \underline{\hspace{2cm}} = 36$

$9 \times \underline{\hspace{2cm}} = 27$

$9 \times \underline{\hspace{2cm}} = 18$

$9 \times \underline{\hspace{2cm}} = 45$

$9 \times \underline{\hspace{2cm}} = 63$

$9 \times \underline{\hspace{2cm}} = 81$

$9 \times \underline{\hspace{2cm}} = 9$

$9 \times \underline{\hspace{2cm}} = 54$

$9 \times \underline{\hspace{2cm}} = 90$

$9 \times \underline{\hspace{2cm}} = 72$

$10 \times \underline{\hspace{2cm}} = 40$

$10 \times \underline{\hspace{2cm}} = 70$

$10 \times \underline{\hspace{2cm}} = 90$

$10 \times \underline{\hspace{2cm}} = 30$

$10 \times \underline{\hspace{2cm}} = 10$

$10 \times \underline{\hspace{2cm}} = 20$

$10 \times \underline{\hspace{2cm}} = 100$

$10 \times \underline{\hspace{2cm}} = 50$

$10 \times \underline{\hspace{2cm}} = 80$

$10 \times \underline{\hspace{2cm}} = 60$

Multiplication

4. If John catches 7 fishes each day, how long will it take him to catch 42 fishes? 6 times 7 are how many?

5. If Moses lays by 10 cents a week, how many weeks will it take him to lay by one dollar, or 100 cents? How many tens does it take to make 100?



Definition Exercise.

1. If one currant bush produces two quarts of currants, how many quarts will 3 currant bushes produce? What is the product of 3 times 2? What is the product of 3 times 7? What is the product of 4 times 5?



2. What number does 6 times 4 make? What is the product of 6 times 4? What is the product of 6 times 7? What is the product of 7 times 6?

Multiplication

3. What is the product of 4 times 8? Ask this question without using the word product.

4. What is the product of 3 and 4? Ask this question without using the word product.

5. How many are 8 times 6? Ask this question without using the word product.

6. What is the product of 7 and 3?

What is the product of 6 and 9?

What is the product of 8 and 7?

What is the product of 3 and 9?

What is the product of 3 and 3?

What is the product of 8 and 8?

7. Supply the proper word in the following?

What is the _____ of 6 and 4?

The _____ of 7 and 5 is what?

9 times 5 gives what _____?

What is the _____ of 2 and 9?

Multiplication

Second Definition Exercise.

1. Here are some curious onions. If you plant a little one like one of those in the first row, it will grow and multiply into 4 or more like those in the second row. If you planted the 3 in the first row, and each one multiplied so as to make 4, how many would you have? How many times as many as you planted? 3 multiplied by 4 produces how many? What is the product of 3 multiplied by 4?



2. If I planted 6 of these curious onions, and each one multiplies into 5, how many times as many shall I have as I planted? 6 multiplied by 5 produces how many?

3. If I multiply 5 by 6, what is the product? When I multiply 6 by 5, what is the product? When I multiply 5 by 6, how many times do I take 5? 6 times 5 are how many?

4. If I multiply 4 by 8, what is the product? Ask this question without using either of the words multiply or product.

Multiplication

5. If I _____ 7 by 3, what is the _____?

If I _____ 6 by 9, what is the _____?

The _____ of 5 _____ by 8 is what?

What is the _____ of 7 _____ by 6?

6. When you multiply 8 by 9, how many times do you take 8?

What is the _____?

7. What is the _____ of 8 and 7?

6 _____ by 4 gives what _____?

What _____ does 4 _____ by 10 give?

8. Finding what the product of two numbers is, is called MULTIPLICATION.

9. We have now studied COUNTING, ADDITION, SUBTRACTION, and MULTIPLICATION.

When I find out that 6 taken from 11 leaves 5, what is it? _____

_____ When I find out that 5 times 6 is 30, what is it? _____

_____ When I name all the numbers in order from one to twenty—thus, one, two, three, four, etc.—what is it? _____

When I find out that 7 and 8 are 15, what is it? _____

Multiplication

Drill Exercise.

1. Add 4 and 3 and 6; from this sum subtract 8; multiply this remainder by 2. What is the result?

2. Add 2 and 6 and 3 and 7; from this sum subtract 9; multiply the remainder by 3. What is the product?

3. Add 5 and 7; from this sum subtract 8; to this remainder add 5; from this sum subtract 7; multiply this remainder by 4; multiply this product by 3; to this product add 6. What is the result?

4. From 8 subtract 3; from this remainder subtract 2; to this remainder add 5 and 7; from this sum subtract 8; to this remainder add 2; multiply this sum by 4. What is the result?

Multiplication

5. Begin with 5, add 2, add 6, subtract 9, multiply by 3, add 5, subtract 8, subtract 6, multiply by 7. What is the result?

6. Begin with 11, subtract 6, subtract 2, multiply by 8, add 5. What is the result?

7. Begin with 6, multiply by 2, subtract 5, add 3, subtract 4, add 1, subtract 6, add 8, multiply by 7. What is the result?

8. Begin with 5, add 7, subtract 3, subtract 4, multiply by 3, add 8. What is the result?

9. Begin with 4, add 9, subtract 7, multiply by 2, subtract 1, subtract 3, multiply by 9. What is the result?

Multiplication

10. Begin with 6, add 8, subtract 7, add 2, multiply by 8. What is the result?

Practical Exercise.

1. John bought 2 oranges for 4 cents each, and gave the clerk 10 cents. How much change did he receive?

2. Mary bought 3 spools of thread for 6 cents each, and one yard of calico for 9 cents. How much did she pay for all?

3. Henry worked 3 hours for 5 cents an hour, and the man for whom he worked gave him a ball worth 8 cents, and the remainder in money? How much money did Henry get?

4. How many days are there in one week? How many in 6 weeks? How many days in 4 weeks?

Multiplication

5. John worked 1 week (6 days) and 4 days more? How many days did he work in all? If he earned 4 shillings a day, how many shillings did he earn? How many more days would he have had to work to make 2 weeks? How much more would he have earned if he had worked 2 weeks?

6. Sarah sews 3 hours each day. How many hours does she sew in a week (6 days)?

7. How many days are there in 8 weeks? How many Sundays in 8 weeks? How many work-days in 8 weeks?



Division

Division

Division

Purpose: *To develop the idea of Division in its Two Forms, and the nature of Division as the converse of Multiplication, and to deduce the quotient of any number less than 100, divided by any number less than 10, from the relation of Division to Multiplication.*

First Exercise.

To be done oral. The use of counters is a great way for the student to visualize the problem.

1. How many little ducks are there in the picture? Are they all together? In how many groups are they? How many in each group? 3 groups with 4 in each group, make how many? How many 4's in 12?
2. If you have 12 ducks and put them in 3 groups, with the same number in each group, how many will be in each group? 12 divided into 3 equal parts makes how many in each part?

3. How many a's are there in the next line?

a a a a a a

If you divide these 6 a's into groups with 3 in a group, how many groups will there be? | **a a a** | **a a a** |. How many 3's in 6? If you divide 6 a's into 2 equal groups, how many will there be in each group? 6 divided by 2 are how many?

4. 3 times what number makes 12? How many times does 4 go in 12? 4 times what number makes 12? How many times does 3 go in 12? 12 divided by 4 are how many? Why? 12 divided by 3 are how many? Why?
5. 2 times what number makes 6? How many are 6 divided by 3? Why? 3 times what number are 6? 6 divided by 2 are how many?

Division

6. The sign for "divided by" is \div . Copy, fill out and learn the following:

| | | |
|---------------------|---------------------|---------------------|
| $2 \div 2 =$ _____ | $3 \div 3 =$ _____ | $8 \div 2 =$ _____ |
| $4 \div 2 =$ _____ | $6 \div 3 =$ _____ | $9 \div 3 =$ _____ |
| $6 \div 2 =$ _____ | $9 \div 3 =$ _____ | $10 \div 2 =$ _____ |
| $8 \div 2 =$ _____ | $12 \div 3 =$ _____ | $6 \div 3 =$ _____ |
| $10 \div 2 =$ _____ | $15 \div 3 =$ _____ | $6 \div 2 =$ _____ |
| $12 \div 2 =$ _____ | $18 \div 3 =$ _____ | $12 \div 3 =$ _____ |
| $14 \div 2 =$ _____ | $21 \div 3 =$ _____ | $12 \div 2 =$ _____ |
| $16 \div 2 =$ _____ | $24 \div 3 =$ _____ | $15 \div 3 =$ _____ |
| $18 \div 2 =$ _____ | $27 \div 3 =$ _____ | $20 \div 2 =$ _____ |
| $20 \div 2 =$ _____ | $30 \div 3 =$ _____ | $18 \div 3 =$ _____ |

| | |
|---------------------|---------------------|
| $4 \div 2 =$ _____ | $2 \div 2 =$ _____ |
| $30 \div 3 =$ _____ | $3 \div 3 =$ _____ |
| $14 \div 2 =$ _____ | $27 \div 3 =$ _____ |
| $16 \div 2 =$ _____ | $18 \div 2 =$ _____ |
| $21 \div 3 =$ _____ | $24 \div 3 =$ _____ |

Division

Second Exercise.

1. How many fingers, including thumbs, have two boys? How many 5's in 20? If you divide 20 into 5 equal parts, how many will there be in each part?



2. $20 \div 5 =$ how many?

3. $20 \div 4 =$ how many?

4. How many legs have 6 cats? How many 4's in 24? $24 \div 4 =$ how many? Why?

5. John has 28 cents; how many lemons can he buy at 4 cents each? How many 4's in 28? $28 \div 4 =$ how many? Why?

6. Mary has 15 pansies, and she wishes to make 5 bouquets and put the same number of pansies in each. How many can she put in each bouquet? If you divide 15 things into 5 equal groups, how many will there be in each group? $15 \div 5 =$ how many?

Division

7. Copy, fill out and learn the following:

| | | |
|---------------------|---------------------|---------------------|
| $4 \div 4 =$ _____ | $5 \div 5 =$ _____ | $12 \div 4 =$ _____ |
| $8 \div 4 =$ _____ | $10 \div 5 =$ _____ | $15 \div 5 =$ _____ |
| $12 \div 4 =$ _____ | $15 \div 5 =$ _____ | $16 \div 4 =$ _____ |
| $16 \div 4 =$ _____ | $20 \div 5 =$ _____ | $28 \div 4 =$ _____ |
| $20 \div 4 =$ _____ | $25 \div 5 =$ _____ | $25 \div 5 =$ _____ |
| $24 \div 4 =$ _____ | $30 \div 5 =$ _____ | $30 \div 5 =$ _____ |
| $28 \div 4 =$ _____ | $35 \div 5 =$ _____ | $36 \div 4 =$ _____ |
| $32 \div 4 =$ _____ | $40 \div 5 =$ _____ | $20 \div 4 =$ _____ |
| $36 \div 4 =$ _____ | $45 \div 5 =$ _____ | $20 \div 5 =$ _____ |
| $40 \div 4 =$ _____ | $50 \div 5 =$ _____ | $8 \div 4 =$ _____ |

| | |
|---------------------|---------------------|
| $4 \div 4 =$ _____ | $40 \div 5 =$ _____ |
| $5 \div 5 =$ _____ | $40 \div 4 =$ _____ |
| $10 \div 5 =$ _____ | $45 \div 5 =$ _____ |
| $35 \div 5 =$ _____ | $24 \div 4 =$ _____ |
| $32 \div 4 =$ _____ | $50 \div 5 =$ _____ |

Division

Third Exercise.

1. This large basket contains 42 eggs. How many times can the little girl fill her small basket from it, if her small basket holds 6 eggs? How many times can she fill her small basket if it holds 7 eggs? How many 6's in 42? How many times 6 make 42? $42 \div 6$ are how many? Why? How many 7's in 42? How many times 7 make 42? $42 \div 7$ make how many? Why?



2. Here are 30 **0's**

0000000000000000000000000000000000

Cross out 6 **0's**. Then cross out 6 more. Then another 6. How many times can you cross out 6 **0's**? How many 6's in 30? How many times 6 make 30? $30 \div 6$ are how many? Why?

3. If John has 35 cents and spends 7 cents each day, how many days before all his money will be spent? $35 \div 7 =$ how many? Why?

4. If Henry has 56 cents, how many oranges can he buy at 7 cents each? $56 \div 7 =$ how many? Why?

Division

Copy, fill out and learn the following:

| | | |
|---------------------|---------------------|---------------------|
| $6 \div 6 =$ _____ | $7 \div 7 =$ _____ | $36 \div 6 =$ _____ |
| $12 \div 6 =$ _____ | $14 \div 7 =$ _____ | $42 \div 7 =$ _____ |
| $18 \div 6 =$ _____ | $21 \div 7 =$ _____ | $42 \div 6 =$ _____ |
| $24 \div 6 =$ _____ | $28 \div 7 =$ _____ | $30 \div 6 =$ _____ |
| $30 \div 6 =$ _____ | $35 \div 7 =$ _____ | $35 \div 7 =$ _____ |
| $36 \div 6 =$ _____ | $42 \div 7 =$ _____ | $49 \div 7 =$ _____ |
| $42 \div 6 =$ _____ | $49 \div 7 =$ _____ | $24 \div 6 =$ _____ |
| $48 \div 6 =$ _____ | $56 \div 7 =$ _____ | $12 \div 6 =$ _____ |
| $54 \div 6 =$ _____ | $63 \div 7 =$ _____ | $70 \div 7 =$ _____ |
| $60 \div 6 =$ _____ | $70 \div 7 =$ _____ | $60 \div 6 =$ _____ |

| | |
|---------------------|---------------------|
| $6 \div 6 =$ _____ | $54 \div 6 =$ _____ |
| $7 \div 7 =$ _____ | $56 \div 7 =$ _____ |
| $14 \div 7 =$ _____ | $48 \div 6 =$ _____ |
| $18 \div 6 =$ _____ | $63 \div 7 =$ _____ |
| $21 \div 7 =$ _____ | $28 \div 7 =$ _____ |

Division

Fourth Exercise.

1. Here are 18 a's.

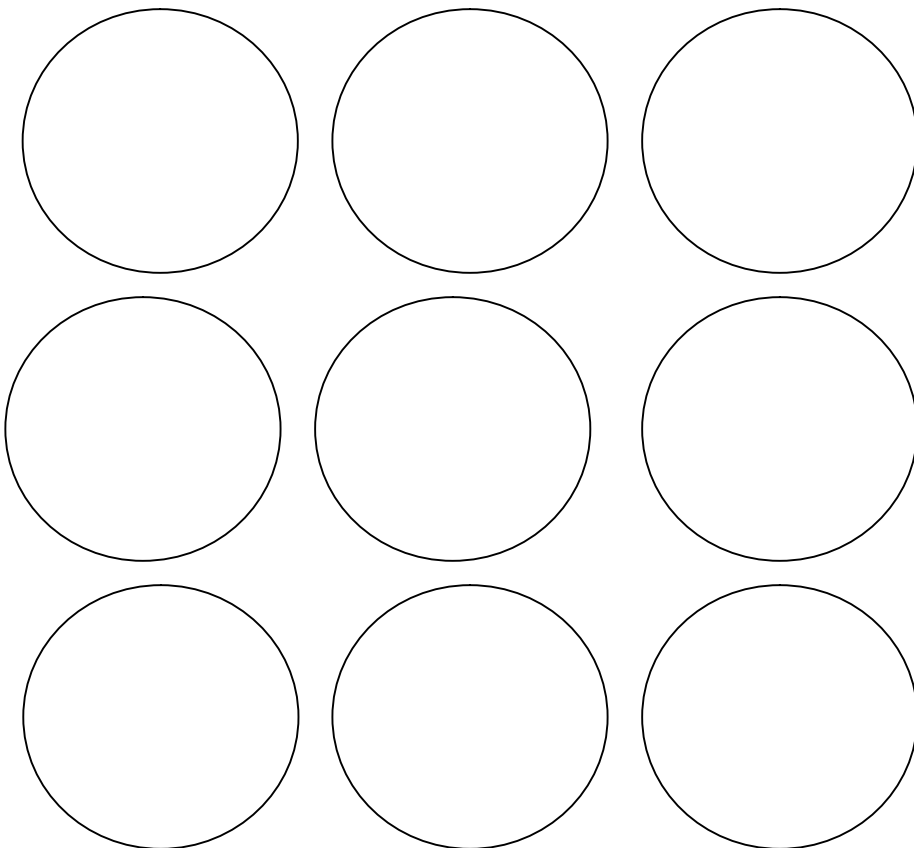
a a a a a a a a a a a a a a a a a a

Mark them off into groups of 9 each. How many such groups will you have? How many 9's in 18? How many times 9 are 18? $18 \div 9 =$ how many?

2. Here are 36 a's.

a a a a a a a a a a a a a a a a a a
a a a a a a a a a a a a a a a a a a

Make 9 large circles. Cross out one a and put it in one of the circles. Then cross out another a and put it in another circle. Then another and another, till you have one a in each circle. Then go round again and put another a in each of the circles, till you have 2 a's in each circle. Then go round again, putting another a in each circle, till all the 36 a's are used up. How many a's will there be in each circle? If you divide 36 into 9 equal groups, how many are there in each group? $36 \div 9 =$ how many? Why?



Division

Copy, fill out and learn the following:

| | | |
|---------------------|---------------------|---------------------|
| $8 \div 8 =$ _____ | $9 \div 9 =$ _____ | $72 \div 9 =$ _____ |
| $16 \div 8 =$ _____ | $18 \div 9 =$ _____ | $72 \div 8 =$ _____ |
| $24 \div 8 =$ _____ | $27 \div 9 =$ _____ | $8 \div 8 =$ _____ |
| $32 \div 8 =$ _____ | $36 \div 9 =$ _____ | $9 \div 9 =$ _____ |
| $40 \div 8 =$ _____ | $45 \div 9 =$ _____ | $80 \div 8 =$ _____ |
| $48 \div 8 =$ _____ | $54 \div 9 =$ _____ | $90 \div 9 =$ _____ |
| $56 \div 8 =$ _____ | $63 \div 9 =$ _____ | $16 \div 8 =$ _____ |
| $64 \div 8 =$ _____ | $72 \div 9 =$ _____ | $18 \div 9 =$ _____ |
| $72 \div 8 =$ _____ | $81 \div 9 =$ _____ | $24 \div 8 =$ _____ |
| $80 \div 8 =$ _____ | $90 \div 9 =$ _____ | $48 \div 8 =$ _____ |

| | |
|---------------------|---------------------|
| $6 \div 9 =$ _____ | $54 \div 8 =$ _____ |
| $7 \div 8 =$ _____ | $56 \div 9 =$ _____ |
| $14 \div 9 =$ _____ | $48 \div 8 =$ _____ |
| $18 \div 8 =$ _____ | $63 \div 9 =$ _____ |
| $21 \div 9 =$ _____ | $28 \div 9 =$ _____ |

Division

Fifth Exercise.

1. How many 10's are there in 20? How many in 30? In 40?
2. $40 \div 10 =$ how many? $30 \div 10 =$ how many?
3. How many 1's in 6? $6 \div 1 =$ how many? How many 1's in 7? $7 \div 1 =$ how many?
4. Mary has 80 needles in 8 papers, with the same number in each paper. How many needles in each paper?
5. If Mary puts her 80 needles up in papers of 10 needles each, how many papers will she have? $80 \div 8 =$ how many? $80 \div 10 =$ how many?
6. John has 60 cents in his bank. If he takes out 10 cents each day, how many days before his money will be gone? How many times can you take 10 out of 60? $60 \div 10 =$ how many?

Division

7. Copy, fill out and learn the following:

| | | |
|-----------------------|---------------------|----------------------|
| $10 \div 10 =$ _____ | $1 \div 1 =$ _____ | $50 \div 10 =$ _____ |
| $20 \div 10 =$ _____ | $2 \div 1 =$ _____ | $8 \div 1 =$ _____ |
| $30 \div 10 =$ _____ | $3 \div 1 =$ _____ | $30 \div 10 =$ _____ |
| $40 \div 10 =$ _____ | $4 \div 1 =$ _____ | $70 \div 10 =$ _____ |
| $50 \div 10 =$ _____ | $5 \div 1 =$ _____ | $7 \div 1 =$ _____ |
| $60 \div 10 =$ _____ | $6 \div 1 =$ _____ | $4 \div 1 =$ _____ |
| $70 \div 10 =$ _____ | $7 \div 1 =$ _____ | $10 \div 10 =$ _____ |
| $80 \div 10 =$ _____ | $8 \div 1 =$ _____ | $1 \div 1 =$ _____ |
| $90 \div 10 =$ _____ | $9 \div 1 =$ _____ | $20 \div 10 =$ _____ |
| $100 \div 10 =$ _____ | $10 \div 1 =$ _____ | $40 \div 10 =$ _____ |

| | |
|----------------------|-----------------------|
| $3 \div 1 =$ _____ | $90 \div 10 =$ _____ |
| $2 \div 1 =$ _____ | $6 \div 1 =$ _____ |
| $60 \div 10 =$ _____ | $9 \div 1 =$ _____ |
| $80 \div 10 =$ _____ | $100 \div 10 =$ _____ |
| $5 \div 1 =$ _____ | $10 \div 1 =$ _____ |

Division

Sixth Exercise.

1. Here is a beautiful pansy. How many blossoms are there on it? If you make 2 bouquets and put 3 of these pansies in each of them, how many pansies will remain? How many 3's in 8, and how many over?



2. John had 15 cents and gave 4 cents apiece for 3 oranges. How many cents did he have remaining? How many times can you take 4 from 15? How many will remain after you have taken 4 from 15 as many times as you can?

3. Are there 4 2's in 7? How many 2's are there in 7? Is there any remainder after you have taken 3 2's from 7? What is it?

4. How many are 5 times 7? 6 times 7? How many 7's are there in 38, and how many over? How many 7's in 40, and how many over? How many 7's in 37, and how many remaining?

Division

5. If you divide 12 into as many 5's as you can, how many 5's will you have, and how many remaining? If you divide 23 into as many 6's as you can, what will the remainder be? $3 \times 6 =$ how many? $4 \times 6 =$ how many? Are there 4 6's in 23?

6. Say the "3 times" of the Multiplication Table. Are there 2 3's in 17? Are there 3 3's in 17? Are there 4? Are there 5? Are there 6? How many 3's are there in 17, and how many over?

7. Say the "6 times" of the Multiplication Table. Are there 3 6's in 27? Are there 4? Are there 5? If you divide 27 into as many 6's as you can, how many 6's will you have, and what remainder?

8. Say the "8 times" of the Multiplication Table. Are there 3 8's in 47? Are there 4? Are there 5? Are there 6? How many times is 8 contained in 47, and how many remain?

Division

Seventh Exercise.

1. Say the "4 times" of the Multiplication Table. Are there 3 4's in 27? Are there 5 4's in 27? Are there 6? Are there 7? How many 4's in 27, and what is the remainder? $27 \div 4$ are how many, and what is the remainder?

2. John had 35 cents and bought 8 lead-pencils, at 4 cents each. How much money had he left? How many 4's in 35, and how many remain?

3. Fill out the following?

$$14 \div 3 = \underline{\hspace{2cm}} \text{ and } \underline{\hspace{2cm}} \text{ remainder.}$$

$$22 \div 4 = \underline{\hspace{2cm}} \text{ and } \underline{\hspace{2cm}} \text{ remainder.}$$

$$18 \div 4 = \underline{\hspace{2cm}} \text{ and } \underline{\hspace{2cm}} \text{ remainder.}$$

$$37 \div 5 = \underline{\hspace{2cm}} \text{ and } \underline{\hspace{2cm}} \text{ remainder.}$$

$$40 \div 6 = \underline{\hspace{2cm}} \text{ and } \underline{\hspace{2cm}} \text{ remainder.}$$

$$51 \div 7 = \underline{\hspace{2cm}} \text{ and } \underline{\hspace{2cm}} \text{ remainder.}$$

Division

$$78 \div 9 = \underline{\quad\quad\quad} \text{ and } \underline{\quad\quad\quad} \text{ remainder.}$$

$$67 \div 8 = \underline{\quad\quad\quad} \text{ and } \underline{\quad\quad\quad} \text{ remainder.}$$

$$80 \div 9 = \underline{\quad\quad\quad} \text{ and } \underline{\quad\quad\quad} \text{ remainder.}$$

Drill Exercise.

1. Add 2, 3, 4, subtract 6, multiply by 7, divide by 3, subtract 5, add 7, divide by 3, multiply by 8, divide by 6, add 9, add 7, divide by 5, divide by 2, add 8, 3, 9, 2, 4, divide by 7. What is the result?

Division

2. Add 5 to 7, subtract 8, multiply by 3, add 9, divide by 7, add 8, subtract 9, add 6, multiply by 7, add 8, divide by 8. What is the result?

3. From 13 subtract 8, multiply by 4, add 6, add 4, add 2, divide by 4, divide by 2, multiply by 7, add 8, divide by 9. What is the result?

4. Divide 54 by 6, divide by 3, multiply by 9, add 8, add 10, divide by 9, multiply by 6, add 5, divide by 7, multiply by 2, multiply by 7, add 2, divide by 8, multiply by 6, add 9, divide by 7, divide by 9, subtract 1. What is the result?

Division

5. Divide 27 by 9, multiply by 3, add 5, add 4, divide by 6, multiply by 8, add 8, add 4, divide by 6, multiply by 7, add 7, divide by 7, multiply by 9, add 1, divide by 8. What is the result?

6. Divide 56 by 7, multiply 6, add 6, divide by 9, multiply by 7, add 7, 3, 6, 4, 1, divide by 9, multiply by 8, add 10, 10, 5, divide by 9. What is the result?

7. From 15 subtract 9, add 2, multiply by 8, add 6, divide by 10, multiply by 9, add 1, divide by 8, subtract 1, multiply by 7, add 7, divide by 9. What is the result?

Division

8. Divide 56 by 7, divide by 2, multiply by 8, add 3, divide by 7, add 4, multiply by 6, add 9, divide by 7. What is the result?

9. From 13 subtract 8, multiply by 6, add 6, divide by 9, multiply by 8, add 4, divide by 6, subtract 6, multiply by 3. What is the result?