

## Memorizing Addition Facts

A-WIA 1

Memorizing all of the addition facts can be a challenge. Fortunately, a few basic math rules reduce the number of addition facts that you need to actually memorize. This page is a summary of those rules.

### Addition Rules:

**1. Identity Property of Addition : Anything plus 0 is just itself.**

You don't have to memorize addition facts involving 0.  
The answer is always just the same number you started with.

**Example:**  $9 + 0 = 9$

**2. Commutative Property : You can switch the order of an addition problem.**

You don't have to memorize both combinations of an addition problem.  
You get the same answer no matter which order the numbers are in.

**If you know:**  $3 + 7 = 10$       **Then you also know:**  $7 + 3 = 10$

**3. Adding 1 is just counting.**

You don't need to memorize the facts for adding 1 if you already know how to count.  
Adding 1 is just like counting up to the next highest number.

**Example:**  $2 + 1 = 3$

**4. Adding 10 is Multi-Digit Addition**

When you add 10 to a single-digit number, all you have to do is put a 1 in the tens place of the answer. The ones place digit will just be the single digit-number you added to 10.

**Example:**  $5 + 10 = 15$

### Addition Fact List

Knowing the rules above means that you really only need to focus on memorizing the 36 addition facts listed here:

$2 + 2 = 4$	$3 + 3 = 6$	$4 + 4 = 8$	$5 + 5 = 10$	$6 + 6 = 12$	$7 + 7 = 14$
$2 + 3 = 5$	$3 + 4 = 7$	$4 + 5 = 9$	$5 + 6 = 11$	$6 + 7 = 13$	$7 + 8 = 15$
$2 + 4 = 6$	$3 + 5 = 8$	$4 + 6 = 10$	$5 + 7 = 12$	$6 + 8 = 14$	$7 + 9 = 16$
$2 + 5 = 7$	$3 + 6 = 9$	$4 + 7 = 11$	$5 + 8 = 13$	$6 + 9 = 15$	
$2 + 6 = 8$	$3 + 7 = 10$	$4 + 8 = 12$	$5 + 9 = 14$		$8 + 8 = 16$
$2 + 7 = 9$	$3 + 8 = 11$	$4 + 9 = 13$			$8 + 9 = 17$
$2 + 8 = 10$	$3 + 9 = 12$				
$2 + 9 = 11$					
					$9 + 9 = 18$

## Addition Fact Practice

A-WIA 2

**Instructions:** Add. (This set includes the 36 addition facts you really need to memorize.)

1  $2 + 4 =$  \_\_\_\_\_

2  $5 + 5 =$  \_\_\_\_\_

3  $2 + 3 =$  \_\_\_\_\_

4  $4 + 7 =$  \_\_\_\_\_

5  $3 + 5 =$  \_\_\_\_\_

6  $6 + 6 =$  \_\_\_\_\_

7  $3 + 3 =$  \_\_\_\_\_

8  $5 + 8 =$  \_\_\_\_\_

9  $2 + 7 =$  \_\_\_\_\_

10  $3 + 4 =$  \_\_\_\_\_

11  $4 + 5 =$  \_\_\_\_\_

12  $7 + 7 =$  \_\_\_\_\_

13  $5 + 6 =$  \_\_\_\_\_

14  $2 + 9 =$  \_\_\_\_\_

15  $2 + 8 =$  \_\_\_\_\_

16  $5 + 9 =$  \_\_\_\_\_

17  $3 + 8 =$  \_\_\_\_\_

18  $2 + 5 =$  \_\_\_\_\_

19  $3 + 6 =$  \_\_\_\_\_

20  $2 + 2 =$  \_\_\_\_\_

21  $6 + 7 =$  \_\_\_\_\_

22  $8 + 8 =$  \_\_\_\_\_

23  $9 + 9 =$  \_\_\_\_\_

24  $4 + 6 =$  \_\_\_\_\_

25  $5 + 7 =$  \_\_\_\_\_

26  $2 + 6 =$  \_\_\_\_\_

27  $4 + 8 =$  \_\_\_\_\_

28  $7 + 9 =$  \_\_\_\_\_

29  $8 + 9 =$  \_\_\_\_\_

30  $4 + 9 =$  \_\_\_\_\_

31  $3 + 7 =$  \_\_\_\_\_

32  $7 + 8 =$  \_\_\_\_\_

33  $6 + 9 =$  \_\_\_\_\_

34  $4 + 4 =$  \_\_\_\_\_

35  $3 + 9 =$  \_\_\_\_\_

36  $6 + 8 =$  \_\_\_\_\_

## Memorizing Multiplication Facts

A-WIA 3

Memorizing the Multiplication Table can be a challenge. Fortunately, a few basic math rules reduce the number of multiplication facts that you need to actually memorize. This page is a summary of those rules.

### **Multiplication Rules:**

- 1. Zero Property on Multiplication : Anything times zero is zero.**

You don't have to memorize multiplication facts involving zero.  
The answer is always just 0.

**Example:**  $7 \times 0 = 0$

- 2. Identity Property of Multiplication : Anything times 1 is just itself.**

You don't have to memorize multiplication facts involving 1.  
The answer is always just the same number you started with.

**Example:**  $9 \times 1 = 9$

- 3. Times 10 : Anything times 10 just gets an extra zero stuck to the end.**

You don't have to memorize multiplication facts involving 10.  
You just put an extra zero on the end of the number being multiplied by 10.

**Example:**  $4 \times 10 = 40$

- 4. Commutative Property : You can switch the order of a multiplication problem.**

You don't have to memorize both combinations of a multiplication problem.  
You get the same answer no matter which order the numbers are in.

**If you know:**  
 $3 \times 5 = 15$

**Then you also know:**  
 $5 \times 3 = 15$

### **Multiplication Table:**

Knowing the rules above means that you only really need to memorize the 36 multiplication facts shown in white on this table.

	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

## Multiplication Fact Practice

A-WIA 4

**Instructions:** Multiply. (This set includes the 36 multiplication facts you really need to memorize.)

1  $2 \times 3 =$  \_\_\_\_\_

2  $2 \times 4 =$  \_\_\_\_\_

3  $5 \times 5 =$  \_\_\_\_\_

4  $6 \times 6 =$  \_\_\_\_\_

5  $4 \times 7 =$  \_\_\_\_\_

6  $3 \times 5 =$  \_\_\_\_\_

7  $2 \times 7 =$  \_\_\_\_\_

8  $3 \times 8 =$  \_\_\_\_\_

9  $5 \times 8 =$  \_\_\_\_\_

10  $7 \times 7 =$  \_\_\_\_\_

11  $2 \times 2 =$  \_\_\_\_\_

12  $4 \times 5 =$  \_\_\_\_\_

13  $2 \times 8 =$  \_\_\_\_\_

14  $9 \times 9 =$  \_\_\_\_\_

15  $2 \times 9 =$  \_\_\_\_\_

16  $2 \times 5 =$  \_\_\_\_\_

17  $2 \times 6 =$  \_\_\_\_\_

18  $5 \times 9 =$  \_\_\_\_\_

19  $6 \times 7 =$  \_\_\_\_\_

20  $8 \times 9 =$  \_\_\_\_\_

21  $3 \times 6 =$  \_\_\_\_\_

22  $4 \times 6 =$  \_\_\_\_\_

23  $7 \times 8 =$  \_\_\_\_\_

24  $8 \times 8 =$  \_\_\_\_\_

25  $4 \times 8 =$  \_\_\_\_\_

26  $3 \times 9 =$  \_\_\_\_\_

27  $5 \times 7 =$  \_\_\_\_\_

28  $4 \times 9 =$  \_\_\_\_\_

29  $3 \times 3 =$  \_\_\_\_\_

30  $7 \times 9 =$  \_\_\_\_\_

31  $6 \times 9 =$  \_\_\_\_\_

32  $3 \times 4 =$  \_\_\_\_\_

33  $3 \times 7 =$  \_\_\_\_\_

34  $6 \times 8 =$  \_\_\_\_\_

35  $5 \times 6 =$  \_\_\_\_\_

36  $4 \times 4 =$  \_\_\_\_\_

## Addition/Subtraction Fact Families

A-WIA 5

**Instructions:** In each problem, use the Addition Fact that is given to figure out the answers for the two Subtraction Facts that are in the same "Fact Family".

1  $4 + 5 = 9$

$9 - 4 = \underline{\quad}$

$9 - 5 = \underline{\quad}$

2  $3 + 7 = 10$

$10 - 7 = \underline{\quad}$

$10 - 3 = \underline{\quad}$

3  $3 + 4 = 7$

$7 - 3 = \underline{\quad}$

$7 - 4 = \underline{\quad}$

4  $6 + 5 = 11$

$11 - 5 = \underline{\quad}$

$11 - 6 = \underline{\quad}$

5  $8 + 2 = 10$

$10 - 8 = \underline{\quad}$

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

6  $8 + 7 = 15$

$15 - 7 = \underline{\quad}$

$15 - 8 = \underline{\quad}$

7  $4 + 8 = 12$

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

$12 - 8 = \underline{\quad}$

8  $7 + 6 = 13$

$13 - 7 = \underline{\quad}$

$13 - 6 = \underline{\quad}$

9  $2 + 9 = 11$

$11 - 2 = \underline{\quad}$

$11 - 9 = \underline{\quad}$

10  $5 + 3 = 8$

$8 - 3 = \underline{\quad}$

$8 - 5 = \underline{\quad}$

11  $9 + 5 = 14$

$14 - 9 = \underline{\quad}$

$14 - 5 = \underline{\quad}$

12  $8 + 6 = 14$

$14 - 6 = \underline{\quad}$

$14 - 8 = \underline{\quad}$

13  $3 + 9 = 12$

$12 - 9 = \underline{\quad}$

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

14  $7 + 2 = 9$

$9 - 7 = \underline{\quad}$

$9 - 2 = \underline{\quad}$

15  $7 + 5 = 12$

$12 - 7 = \underline{\quad}$

$12 - 5 = \underline{\quad}$

16  $2 + 4 = 6$

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

$6 - 4 = \underline{\quad}$

17  $7 + 4 = 11$

$11 - 4 = \underline{\quad}$

$11 - 7 = \underline{\quad}$

18  $6 + 3 = 9$

$9 - 6 = \underline{\quad}$

$9 - 3 = \underline{\quad}$

19  $9 + 4 = 13$

$13 - 9 = \underline{\quad}$

$13 - 4 = \underline{\quad}$

20  $5 + 8 = 13$

$13 - 8 = \underline{\quad}$

$13 - 5 = \underline{\quad}$

21  $8 + 9 = 17$

$17 - 9 = \underline{\quad}$

$17 - 8 = \underline{\quad}$

22  $2 + 6 = 8$

$8 - 6 = \underline{\quad}$

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

23  $7 + 9 = 16$

$16 - 7 = \underline{\quad}$

$16 - 9 = \underline{\quad}$

24  $4 + 6 = 10$

$10 - 6 = \underline{\quad}$

$10 - 4 = \underline{\quad}$

## Subtraction Fact Practice

A-WIA 6

Instructions: Subtract.

1  $10 - 4 =$  \_\_\_\_\_

2  $9 - 5 =$  \_\_\_\_\_

3  $8 - 3 =$  \_\_\_\_\_

4  $6 - 4 =$  \_\_\_\_\_

5  $11 - 4 =$  \_\_\_\_\_

6  $12 - 6 =$  \_\_\_\_\_

7  $9 - 7 =$  \_\_\_\_\_

8  $10 - 5 =$  \_\_\_\_\_

9  $14 - 7 =$  \_\_\_\_\_

10  $11 - 5 =$  \_\_\_\_\_

11  $14 - 8 =$  \_\_\_\_\_

12  $10 - 3 =$  \_\_\_\_\_

13  $9 - 6 =$  \_\_\_\_\_

14  $12 - 4 =$  \_\_\_\_\_

15  $11 - 3 =$  \_\_\_\_\_

16  $13 - 7 =$  \_\_\_\_\_

17  $12 - 3 =$  \_\_\_\_\_

18  $10 - 8 =$  \_\_\_\_\_

19  $10 - 7 =$  \_\_\_\_\_

20  $14 - 5 =$  \_\_\_\_\_

21  $11 - 6 =$  \_\_\_\_\_

22  $9 - 4 =$  \_\_\_\_\_

23  $7 - 3 =$  \_\_\_\_\_

24  $13 - 8 =$  \_\_\_\_\_

25  $10 - 6 =$  \_\_\_\_\_

26  $8 - 5 =$  \_\_\_\_\_

27  $11 - 7 =$  \_\_\_\_\_

28  $14 - 6 =$  \_\_\_\_\_

29  $15 - 8 =$  \_\_\_\_\_

30  $15 - 9 =$  \_\_\_\_\_

31  $10 - 2 =$  \_\_\_\_\_

32  $14 - 7 =$  \_\_\_\_\_

33  $16 - 7 =$  \_\_\_\_\_

34  $17 - 9 =$  \_\_\_\_\_

35  $12 - 8 =$  \_\_\_\_\_

36  $13 - 9 =$  \_\_\_\_\_

## Multiplication/Division Fact Families

A-WIA 7

**Instructions:** In each problem, use the Multiplication Fact that is given to figure out the answers for the two Division Facts that are in the same "Fact Family".

<b>1</b> $7 \times 2 = 14$	<b>2</b> $2 \times 4 = 8$	<b>3</b> $7 \times 5 = 35$	<b>4</b> $3 \times 9 = 27$
$14 \div 7 = \underline{\quad}$	$8 \div 2 = \underline{\quad}$	$35 \div 7 = \underline{\quad}$	$27 \div 9 = \underline{\quad}$
$14 \div 2 = \underline{\quad}$	$8 \div 4 = \underline{\quad}$	$35 \div 5 = \underline{\quad}$	$27 \div 3 = \underline{\quad}$

<b>5</b> $3 \times 7 = 21$	<b>6</b> $6 \times 5 = 30$	<b>7</b> $3 \times 4 = 12$	<b>8</b> $4 \times 5 = 20$
$21 \div 7 = \underline{\quad}$	$30 \div 5 = \underline{\quad}$	$12 \div 3 = \underline{\quad}$	$20 \div 4 = \underline{\quad}$
$21 \div 3 = \underline{\quad}$	$30 \div 6 = \underline{\quad}$	$12 \div 4 = \underline{\quad}$	$20 \div 5 = \underline{\quad}$

<b>9</b> $2 \times 6 = 12$	<b>10</b> $4 \times 6 = 24$	<b>11</b> $7 \times 9 = 63$	<b>12</b> $8 \times 9 = 72$
$12 \div 6 = \underline{\quad}$	$24 \div 6 = \underline{\quad}$	$63 \div 7 = \underline{\quad}$	$72 \div 9 = \underline{\quad}$
$12 \div 2 = \underline{\quad}$	$24 \div 4 = \underline{\quad}$	$63 \div 9 = \underline{\quad}$	$72 \div 8 = \underline{\quad}$

<b>13</b> $5 \times 3 = 15$	<b>14</b> $8 \times 6 = 48$	<b>15</b> $9 \times 5 = 45$	<b>16</b> $2 \times 9 = 18$
$15 \div 3 = \underline{\quad}$	$48 \div 6 = \underline{\quad}$	$45 \div 9 = \underline{\quad}$	$18 \div 2 = \underline{\quad}$
$15 \div 5 = \underline{\quad}$	$48 \div 8 = \underline{\quad}$	$45 \div 5 = \underline{\quad}$	$18 \div 9 = \underline{\quad}$

<b>17</b> $6 \times 3 = 18$	<b>18</b> $5 \times 8 = 40$	<b>19</b> $9 \times 4 = 36$	<b>20</b> $7 \times 4 = 28$
$18 \div 6 = \underline{\quad}$	$40 \div 8 = \underline{\quad}$	$36 \div 9 = \underline{\quad}$	$28 \div 4 = \underline{\quad}$
$18 \div 3 = \underline{\quad}$	$40 \div 5 = \underline{\quad}$	$36 \div 4 = \underline{\quad}$	$28 \div 7 = \underline{\quad}$

<b>21</b> $8 \times 7 = 56$	<b>22</b> $7 \times 6 = 42$	<b>23</b> $4 \times 8 = 32$	<b>24</b> $8 \times 2 = 16$
$56 \div 7 = \underline{\quad}$	$42 \div 7 = \underline{\quad}$	$32 \div 4 = \underline{\quad}$	$16 \div 8 = \underline{\quad}$
$56 \div 8 = \underline{\quad}$	$42 \div 6 = \underline{\quad}$	$32 \div 8 = \underline{\quad}$	$16 \div 2 = \underline{\quad}$

## Division Fact Practice

A-WIA 8

Instructions: Divide.

1  $24 \div 4 =$  \_\_\_\_\_

2  $30 \div 5 =$  \_\_\_\_\_

3  $15 \div 3 =$  \_\_\_\_\_

4  $12 \div 4 =$  \_\_\_\_\_

5  $32 \div 4 =$  \_\_\_\_\_

6  $14 \div 7 =$  \_\_\_\_\_

7  $18 \div 6 =$  \_\_\_\_\_

8  $54 \div 6 =$  \_\_\_\_\_

9  $21 \div 3 =$  \_\_\_\_\_

10  $20 \div 4 =$  \_\_\_\_\_

11  $16 \div 8 =$  \_\_\_\_\_

12  $72 \div 9 =$  \_\_\_\_\_

13  $42 \div 6 =$  \_\_\_\_\_

14  $35 \div 5 =$  \_\_\_\_\_

15  $36 \div 9 =$  \_\_\_\_\_

16  $40 \div 8 =$  \_\_\_\_\_

17  $28 \div 7 =$  \_\_\_\_\_

18  $27 \div 3 =$  \_\_\_\_\_

19  $30 \div 6 =$  \_\_\_\_\_

20  $24 \div 6 =$  \_\_\_\_\_

21  $20 \div 5 =$  \_\_\_\_\_

22  $45 \div 5 =$  \_\_\_\_\_

23  $21 \div 7 =$  \_\_\_\_\_

24  $35 \div 7 =$  \_\_\_\_\_

25  $32 \div 8 =$  \_\_\_\_\_

26  $18 \div 3 =$  \_\_\_\_\_

27  $15 \div 5 =$  \_\_\_\_\_

28  $12 \div 3 =$  \_\_\_\_\_

29  $28 \div 4 =$  \_\_\_\_\_

30  $54 \div 9 =$  \_\_\_\_\_

31  $36 \div 4 =$  \_\_\_\_\_

32  $16 \div 2 =$  \_\_\_\_\_

33  $72 \div 8 =$  \_\_\_\_\_

34  $42 \div 7 =$  \_\_\_\_\_

35  $14 \div 2 =$  \_\_\_\_\_

36  $27 \div 9 =$  \_\_\_\_\_



## Math Fact Involving “Double Numbers”

A-WIA 9

The addition and multiplication facts that involve “double numbers” (for example:  $2 + 2$  or  $5 \times 5$ ) are easier to memorize because there are only two numbers that you have to associate. It is also easier to memorize the subtraction and division facts that go along with them because there is only one other fact in the “fact family” instead of two.

**Instructions:** Use the Addition Facts given to figure out the answers for the Subtraction Fact in the same “Fact Family”.

<b>1</b>	$2 + 2 = 4$	<b>2</b>	$3 + 3 = 6$	<b>3</b>	$4 + 4 = 8$	<b>4</b>	$5 + 5 = 10$
	$4 - 2 = \underline{\quad}$		$6 - 3 = \underline{\quad}$		$8 - 4 = \underline{\quad}$		$10 - 5 = \underline{\quad}$

<b>5</b>	$6 + 6 = 12$	<b>6</b>	$7 + 7 = 14$	<b>7</b>	$8 + 8 = 16$	<b>8</b>	$9 + 9 = 18$
	$12 - 6 = \underline{\quad}$		$14 - 7 = \underline{\quad}$		$16 - 8 = \underline{\quad}$		$18 - 9 = \underline{\quad}$

**Instructions:** Use the Multiplication Facts given to figure out the answers for the Division Fact in the same “Fact Family”.

<b>1</b>	$2 \times 2 = 4$	<b>2</b>	$3 \times 3 = 9$	<b>3</b>	$4 \times 4 = 16$	<b>4</b>	$5 \times 5 = 25$
	$4 \div 2 = \underline{\quad}$		$9 \div 3 = \underline{\quad}$		$16 \div 4 = \underline{\quad}$		$25 \div 5 = \underline{\quad}$

<b>5</b>	$6 \times 6 = 36$	<b>6</b>	$7 \times 7 = 49$	<b>7</b>	$8 \times 8 = 64$	<b>8</b>	$9 \times 9 = 81$
	$36 \div 6 = \underline{\quad}$		$49 \div 7 = \underline{\quad}$		$64 \div 8 = \underline{\quad}$		$81 \div 9 = \underline{\quad}$

## “Doubles” Facts Practice

A-WIA 10

**Instructions:** This is a mixture of addition, subtraction, multiplication and division problems involving the “doubles facts” described on the previous page. **Caution!** Look carefully at each operation symbol before answering!

1  $5 + 5 =$  \_\_\_\_\_

2  $6 - 3 =$  \_\_\_\_\_

3  $4 \times 4 =$  \_\_\_\_\_

4  $25 \div 5 =$  \_\_\_\_\_

5  $6 + 6 =$  \_\_\_\_\_

6  $9 + 9 =$  \_\_\_\_\_

7  $16 \div 4 =$  \_\_\_\_\_

8  $10 - 5 =$  \_\_\_\_\_

9  $36 \div 6 =$  \_\_\_\_\_

10  $7 \times 7 =$  \_\_\_\_\_

11  $3 + 3 =$  \_\_\_\_\_

12  $9 \div 3 =$  \_\_\_\_\_

13  $5 \times 5 =$  \_\_\_\_\_

14  $12 - 6 =$  \_\_\_\_\_

15  $81 \div 9 =$  \_\_\_\_\_

16  $8 + 8 =$  \_\_\_\_\_

17  $2 + 2 =$  \_\_\_\_\_

18  $49 \div 7 =$  \_\_\_\_\_

19  $4 - 2 =$  \_\_\_\_\_

20  $14 - 7 =$  \_\_\_\_\_

21  $6 \times 6 =$  \_\_\_\_\_

22  $7 + 7 =$  \_\_\_\_\_

23  $18 - 9 =$  \_\_\_\_\_

24  $2 \times 2 =$  \_\_\_\_\_

25  $64 \div 8 =$  \_\_\_\_\_

26  $3 \times 3 =$  \_\_\_\_\_

27  $16 - 8 =$  \_\_\_\_\_

28  $8 - 4 =$  \_\_\_\_\_

29  $8 \times 8 =$  \_\_\_\_\_

30  $4 \div 2 =$  \_\_\_\_\_

31  $9 \times 9 =$  \_\_\_\_\_

32  $4 + 4 =$  \_\_\_\_\_

## What Is Arithmetic?

**1** If you can switch the order of the numbers in a math operation and still get the same answer, then that operation has the:

\_\_\_\_\_ **Property**

**2** Math operations that “undo” one another are called:

\_\_\_\_\_ **Operations**

**3** Circle to indicate if this statement is true or false.

Addition and Subtraction have the Commutative Property.

**TRUE or FALSE**

**4** Circle to indicate if this statement is true or false.

Multiplication and Division are Inverse Operations.

**TRUE or FALSE**

**5** Complete the ‘Fact Family’.

$$\begin{array}{ccc}
 & 6 + 4 = 10 & \\
 \swarrow & & \searrow \\
 10 - 4 = \underline{\quad} & & 10 - 6 = \underline{\quad}
 \end{array}$$

**6** Complete the ‘Fact Family’.

$$\begin{array}{ccc}
 & 3 \times 5 = 15 & \\
 \swarrow & & \searrow \\
 15 \div 5 = \underline{\quad} & & 15 \div 3 = \underline{\quad}
 \end{array}$$

**7** Complete the ‘Fact Family’.

$$\begin{array}{ccc}
 & 5 + 7 = 12 & \\
 \swarrow & & \searrow \\
 12 - 7 = \underline{\quad} & & 12 - 5 = \underline{\quad}
 \end{array}$$

**8** Complete the ‘Fact Family’.

$$\begin{array}{ccc}
 & 4 \times 6 = 24 & \\
 \swarrow & & \searrow \\
 24 \div 6 = \underline{\quad} & & 24 \div 4 = \underline{\quad}
 \end{array}$$

**9** Complete the ‘Fact Family’.

$$\begin{array}{ccc}
 & 8 + 6 = 14 & \\
 \swarrow & & \searrow \\
 14 - \underline{\quad} = 8 & & 14 - \underline{\quad} = 6
 \end{array}$$

**10** Complete the ‘Fact Family’.

$$\begin{array}{ccc}
 & 7 \times 8 = 56 & \\
 \swarrow & & \searrow \\
 56 \div \underline{\quad} = 7 & & 56 \div \underline{\quad} = 8
 \end{array}$$

## What Is Arithmetic?

**1** If you can switch the order of the numbers in a math operation and still get the same answer, then that operation has the:

Commutative Property

**2** Math operations that “undo” one another are called:

Inverse Operations

**3** Circle to indicate if this statement is true or false.

Addition and Subtraction have the Commutative Property.

TRUE or **FALSE**

Subtraction does not Commute.

**4** Circle to indicate if this statement is true or false.

Multiplication and Division are Inverse Operations.

**TRUE** or FALSE

**5** Complete the ‘Fact Family’.

$$6 + 4 = 10$$

$$10 - 4 = \underline{6} \quad 10 - 6 = \underline{4}$$

**6** Complete the ‘Fact Family’.

$$3 \times 5 = 15$$

$$15 \div 5 = \underline{3} \quad 15 \div 3 = \underline{5}$$

**7** Complete the ‘Fact Family’.

$$5 + 7 = 12$$

$$12 - 7 = \underline{5} \quad 12 - 5 = \underline{7}$$

**8** Complete the ‘Fact Family’.

$$4 \times 6 = 24$$

$$24 \div 6 = \underline{4} \quad 24 \div 4 = \underline{6}$$

**9** Complete the ‘Fact Family’.

$$8 + 6 = 14$$

$$14 - \underline{6} = 8 \quad 14 - \underline{8} = 6$$

**10** Complete the ‘Fact Family’.

$$7 \times 8 = 56$$

$$56 \div \underline{8} = 7 \quad 56 \div \underline{7} = 8$$

## Memorizing Addition Facts

A-WIA 1

Memorizing all of the addition facts can be a challenge. Fortunately, a few basic math rules reduce the number of addition facts that you need to actually memorize. This page is a summary of those rules.

### Addition Rules:

**1. Identity Property of Addition : Anything plus 0 is just itself.**

You don't have to memorize addition facts involving 0.  
The answer is always just the same number you started with.

**Example:**  $9 + 0 = 9$

**2. Commutative Property : You can switch the order of an addition problem.**

You don't have to memorize both combinations of an addition problem.  
You get the same answer no matter which order the numbers are in.

**If you know:**  $3 + 7 = 10$       **Then you also know:**  $7 + 3 = 10$

**3. Adding 1 is just counting.**

You don't need to memorize the facts for adding 1 if you already know how to count.  
Adding 1 is just like counting up to the next highest number.

**Example:**  $2 + 1 = 3$

**4. Adding 10 is Multi-Digit Addition**

When you add 10 to a single-digit number, all you have to do is put a 1 in the tens place of the answer. The ones place digit will just be the single digit-number you added to 10.

**Example:**  $5 + 10 = 15$

### Addition Fact List

Knowing the rules above means that you really only need to focus on memorizing the 36 addition facts listed here:

$2 + 2 = 4$	$3 + 3 = 6$	$4 + 4 = 8$	$5 + 5 = 10$	$6 + 6 = 12$	$7 + 7 = 14$
$2 + 3 = 5$	$3 + 4 = 7$	$4 + 5 = 9$	$5 + 6 = 11$	$6 + 7 = 13$	$7 + 8 = 15$
$2 + 4 = 6$	$3 + 5 = 8$	$4 + 6 = 10$	$5 + 7 = 12$	$6 + 8 = 14$	$7 + 9 = 16$
$2 + 5 = 7$	$3 + 6 = 9$	$4 + 7 = 11$	$5 + 8 = 13$	$6 + 9 = 15$	
$2 + 6 = 8$	$3 + 7 = 10$	$4 + 8 = 12$	$5 + 9 = 14$		$8 + 8 = 16$
$2 + 7 = 9$	$3 + 8 = 11$	$4 + 9 = 13$			$8 + 9 = 17$
$2 + 8 = 10$	$3 + 9 = 12$				
$2 + 9 = 11$					
					$9 + 9 = 18$

## Addition Fact Practice

A-WIA 2

**Instructions:** Add. (This set includes the 36 addition facts you really need to memorize.)

1  $2 + 4 = \underline{6}$

2  $5 + 5 = \underline{10}$

3  $2 + 3 = \underline{5}$

4  $4 + 7 = \underline{11}$

5  $3 + 5 = \underline{8}$

6  $6 + 6 = \underline{12}$

7  $3 + 3 = \underline{6}$

8  $5 + 8 = \underline{13}$

9  $2 + 7 = \underline{9}$

10  $3 + 4 = \underline{7}$

11  $4 + 5 = \underline{9}$

12  $7 + 7 = \underline{14}$

13  $5 + 6 = \underline{11}$

14  $2 + 9 = \underline{11}$

15  $2 + 8 = \underline{10}$

16  $5 + 9 = \underline{14}$

17  $3 + 8 = \underline{11}$

18  $2 + 5 = \underline{7}$

19  $3 + 6 = \underline{9}$

20  $2 + 2 = \underline{4}$

21  $6 + 7 = \underline{13}$

22  $8 + 8 = \underline{16}$

23  $9 + 9 = \underline{18}$

24  $4 + 6 = \underline{10}$

25  $5 + 7 = \underline{12}$

26  $2 + 6 = \underline{8}$

27  $4 + 8 = \underline{12}$

28  $7 + 9 = \underline{16}$

29  $8 + 9 = \underline{17}$

30  $4 + 9 = \underline{13}$

31  $3 + 7 = \underline{10}$

32  $7 + 8 = \underline{15}$

33  $6 + 9 = \underline{15}$

34  $4 + 4 = \underline{8}$

35  $3 + 9 = \underline{12}$

36  $6 + 8 = \underline{14}$

## Memorizing Multiplication Facts

A-WIA 3

Memorizing the Multiplication Table can be a challenge. Fortunately, a few basic math rules reduce the number of multiplication facts that you need to actually memorize. This page is a summary of those rules.

### **Multiplication Rules:**

- 1. Zero Property on Multiplication : Anything times zero is zero.**

You don't have to memorize multiplication facts involving zero.  
The answer is always just 0.

**Example:**  $7 \times 0 = 0$

- 2. Identity Property of Multiplication : Anything times 1 is just itself.**

You don't have to memorize multiplication facts involving 1.  
The answer is always just the same number you started with.

**Example:**  $9 \times 1 = 9$

- 3. Times 10 : Anything times 10 just gets an extra zero stuck to the end.**

You don't have to memorize multiplication facts involving 10.  
You just put an extra zero on the end of the number being multiplied by 10.

**Example:**  $4 \times 10 = 40$

- 4. Commutative Property : You can switch the order of a multiplication problem.**

You don't have to memorize both combinations of a multiplication problem.  
You get the same answer no matter which order the numbers are in.

**If you know:**  
 $3 \times 5 = 15$

**Then you also know:**  
 $5 \times 3 = 15$

### **Multiplication Table:**

Knowing the rules above means that you only really need to memorize the 36 multiplication facts shown in white on this table.

	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

## Multiplication Fact Practice

A-WIA 4

**Instructions:** Multiply. (This set includes the 36 multiplication facts you really need to memorize.)

1  $2 \times 3 = \underline{6}$

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

3  $5 \times 5 = \underline{25}$

4  $6 \times 6 = \underline{36}$

5  $4 \times 7 = \underline{28}$

6  $3 \times 5 = \underline{15}$

7  $2 \times 7 = \underline{14}$

8  $3 \times 8 = \underline{24}$

9  $5 \times 8 = \underline{40}$

10  $7 \times 7 = \underline{49}$

11  $2 \times 2 = \underline{4}$

12  $4 \times 5 = \underline{20}$

13  $2 \times 8 = \underline{16}$

14  $9 \times 9 = \underline{81}$

15  $2 \times 9 = \underline{18}$

16  $2 \times 5 = \underline{10}$

17  $2 \times 6 = \underline{12}$

18  $5 \times 9 = \underline{45}$

19  $6 \times 7 = \underline{42}$

20  $8 \times 9 = \underline{72}$

21  $3 \times 6 = \underline{18}$

22  $4 \times 6 = \underline{24}$

23  $7 \times 8 = \underline{56}$

24  $8 \times 8 = \underline{64}$

25  $4 \times 8 = \underline{32}$

26  $3 \times 9 = \underline{27}$

27  $5 \times 7 = \underline{35}$

28  $4 \times 9 = \underline{36}$

29  $3 \times 3 = \underline{9}$

30  $7 \times 9 = \underline{63}$

31  $6 \times 9 = \underline{54}$

32  $3 \times 4 = \underline{12}$

33  $3 \times 7 = \underline{21}$

34  $6 \times 8 = \underline{48}$

35  $5 \times 6 = \underline{30}$

36  $4 \times 4 = \underline{16}$



## Addition/Subtraction Fact Families

A-WIA 5

**Instructions:** In each problem, use the Addition Fact that is given to figure out the answers for the two Subtraction Facts that are in the same "Fact Family".

1  $4 + 5 = 9$

$9 - 4 = \underline{5}$

$9 - 5 = \underline{4}$

2  $3 + 7 = 10$

$10 - 7 = \underline{3}$

$10 - 3 = \underline{7}$

3  $3 + 4 = 7$

$7 - 3 = \underline{4}$

$7 - 4 = \underline{3}$

4  $6 + 5 = 11$

$11 - 5 = \underline{6}$

$11 - 6 = \underline{5}$

5  $8 + 2 = 10$

$10 - 8 = \underline{2}$

$10 - 2 = \underline{8}$

6  $8 + 7 = 15$

$15 - 7 = \underline{8}$

$15 - 8 = \underline{7}$

7  $4 + 8 = 12$

$12 - 4 = \underline{8}$

$12 - 8 = \underline{4}$

8  $7 + 6 = 13$

$13 - 7 = \underline{6}$

$13 - 6 = \underline{7}$

9  $2 + 9 = 11$

$11 - 2 = \underline{9}$

$11 - 9 = \underline{2}$

10  $5 + 3 = 8$

$8 - 3 = \underline{5}$

$8 - 5 = \underline{3}$

11  $9 + 5 = 14$

$14 - 9 = \underline{5}$

$14 - 5 = \underline{9}$

12  $8 + 6 = 14$

$14 - 6 = \underline{8}$

$14 - 8 = \underline{6}$

13  $3 + 9 = 12$

$12 - 9 = \underline{3}$

$12 - 3 = \underline{9}$

14  $7 + 2 = 9$

$9 - 7 = \underline{2}$

$9 - 2 = \underline{7}$

15  $7 + 5 = 12$

$12 - 7 = \underline{5}$

$12 - 5 = \underline{7}$

16  $2 + 4 = 6$

$6 - 2 = \underline{4}$

$6 - 4 = \underline{2}$

17  $7 + 4 = 11$

$11 - 4 = \underline{7}$

$11 - 7 = \underline{4}$

18  $6 + 3 = 9$

$9 - 6 = \underline{3}$

$9 - 3 = \underline{6}$

19  $9 + 4 = 13$

$13 - 9 = \underline{4}$

$13 - 4 = \underline{9}$

20  $5 + 8 = 13$

$13 - 8 = \underline{5}$

$13 - 5 = \underline{8}$

21  $8 + 9 = 17$

$17 - 9 = \underline{8}$

$17 - 8 = \underline{9}$

22  $2 + 6 = 8$

$8 - 6 = \underline{2}$

$8 - 2 = \underline{6}$

23  $7 + 9 = 16$

$16 - 7 = \underline{9}$

$16 - 9 = \underline{7}$

24  $4 + 6 = 10$

$10 - 6 = \underline{4}$

$10 - 4 = \underline{6}$

## Subtraction Fact Practice

A-WIA 6

Instructions: Subtract.

1  $10 - 4 = \underline{6}$

2  $9 - 5 = \underline{4}$

3  $8 - 3 = \underline{5}$

4  $6 - 4 = \underline{2}$

5  $11 - 4 = \underline{7}$

6  $12 - 6 = \underline{6}$

7  $9 - 7 = \underline{2}$

8  $10 - 5 = \underline{5}$

9  $14 - 7 = \underline{7}$

10  $11 - 5 = \underline{6}$

11  $14 - 8 = \underline{6}$

12  $10 - 3 = \underline{7}$

13  $9 - 6 = \underline{3}$

14  $12 - 4 = \underline{8}$

15  $11 - 3 = \underline{8}$

16  $13 - 7 = \underline{6}$

17  $12 - 3 = \underline{9}$

18  $10 - 8 = \underline{2}$

19  $10 - 7 = \underline{3}$

20  $14 - 5 = \underline{9}$

21  $11 - 6 = \underline{5}$

22  $9 - 4 = \underline{5}$

23  $7 - 3 = \underline{4}$

24  $13 - 8 = \underline{5}$

25  $10 - 6 = \underline{4}$

26  $8 - 5 = \underline{3}$

27  $11 - 7 = \underline{4}$

28  $14 - 6 = \underline{8}$

29  $15 - 8 = \underline{7}$

30  $15 - 9 = \underline{6}$

31  $10 - 2 = \underline{8}$

32  $14 - 7 = \underline{7}$

33  $16 - 7 = \underline{9}$

34  $17 - 9 = \underline{8}$

35  $12 - 8 = \underline{4}$

36  $13 - 9 = \underline{4}$

## Multiplication/Division Fact Families

A-WIA 7

**Instructions:** In each problem, use the Multiplication Fact that is given to figure out the answers for the two Division Facts that are in the same "Fact Family".

<b>1</b> $7 \times 2 = 14$	<b>2</b> $2 \times 4 = 8$	<b>3</b> $7 \times 5 = 35$	<b>4</b> $3 \times 9 = 27$
$14 \div 7 = \underline{2}$	$8 \div 2 = \underline{4}$	$35 \div 7 = \underline{5}$	$27 \div 9 = \underline{3}$
$14 \div 2 = \underline{7}$	$8 \div 4 = \underline{2}$	$35 \div 5 = \underline{7}$	$27 \div 3 = \underline{9}$

<b>5</b> $3 \times 7 = 21$	<b>6</b> $6 \times 5 = 30$	<b>7</b> $3 \times 4 = 12$	<b>8</b> $4 \times 5 = 20$
$21 \div 7 = \underline{3}$	$30 \div 5 = \underline{6}$	$12 \div 3 = \underline{4}$	$20 \div 4 = \underline{5}$
$21 \div 3 = \underline{7}$	$30 \div 6 = \underline{5}$	$12 \div 4 = \underline{3}$	$20 \div 5 = \underline{4}$

<b>9</b> $2 \times 6 = 12$	<b>10</b> $4 \times 6 = 24$	<b>11</b> $7 \times 9 = 63$	<b>12</b> $8 \times 9 = 72$
$12 \div 6 = \underline{2}$	$24 \div 6 = \underline{4}$	$63 \div 7 = \underline{9}$	$72 \div 9 = \underline{8}$
$12 \div 2 = \underline{6}$	$24 \div 4 = \underline{6}$	$63 \div 9 = \underline{7}$	$72 \div 8 = \underline{9}$

<b>13</b> $5 \times 3 = 15$	<b>14</b> $8 \times 6 = 48$	<b>15</b> $9 \times 5 = 45$	<b>16</b> $2 \times 9 = 18$
$15 \div 3 = \underline{5}$	$48 \div 6 = \underline{8}$	$45 \div 9 = \underline{5}$	$18 \div 2 = \underline{9}$
$15 \div 5 = \underline{3}$	$48 \div 8 = \underline{6}$	$45 \div 5 = \underline{9}$	$18 \div 9 = \underline{2}$

<b>17</b> $6 \times 3 = 18$	<b>18</b> $5 \times 8 = 40$	<b>19</b> $9 \times 4 = 36$	<b>20</b> $7 \times 4 = 28$
$18 \div 6 = \underline{3}$	$40 \div 8 = \underline{5}$	$36 \div 9 = \underline{4}$	$28 \div 4 = \underline{7}$
$18 \div 3 = \underline{6}$	$40 \div 5 = \underline{8}$	$36 \div 4 = \underline{9}$	$28 \div 7 = \underline{4}$

<b>21</b> $8 \times 7 = 56$	<b>22</b> $7 \times 6 = 42$	<b>23</b> $4 \times 8 = 32$	<b>24</b> $8 \times 2 = 16$
$56 \div 7 = \underline{8}$	$42 \div 7 = \underline{6}$	$32 \div 4 = \underline{8}$	$16 \div 8 = \underline{2}$
$56 \div 8 = \underline{7}$	$42 \div 6 = \underline{7}$	$32 \div 8 = \underline{4}$	$16 \div 2 = \underline{8}$

## Division Fact Practice

A-WIA 8

Instructions: Divide.

1  $24 \div 4 = \underline{6}$

2  $30 \div 5 = \underline{6}$

3  $15 \div 3 = \underline{5}$

4  $12 \div 4 = \underline{3}$

5  $32 \div 4 = \underline{8}$

6  $14 \div 7 = \underline{2}$

7  $18 \div 6 = \underline{3}$

8  $54 \div 6 = \underline{9}$

9  $21 \div 3 = \underline{7}$

10  $20 \div 4 = \underline{5}$

11  $16 \div 8 = \underline{2}$

12  $72 \div 9 = \underline{8}$

13  $42 \div 6 = \underline{7}$

14  $35 \div 5 = \underline{7}$

15  $36 \div 9 = \underline{4}$

16  $40 \div 8 = \underline{5}$

17  $28 \div 7 = \underline{4}$

18  $27 \div 3 = \underline{9}$

19  $30 \div 6 = \underline{5}$

20  $24 \div 6 = \underline{4}$

21  $20 \div 5 = \underline{4}$

22  $45 \div 5 = \underline{9}$

23  $21 \div 7 = \underline{3}$

24  $35 \div 7 = \underline{5}$

25  $32 \div 8 = \underline{4}$

26  $18 \div 3 = \underline{6}$

27  $15 \div 5 = \underline{3}$

28  $12 \div 3 = \underline{4}$

29  $28 \div 4 = \underline{7}$

30  $54 \div 9 = \underline{6}$

31  $36 \div 4 = \underline{9}$

32  $16 \div 2 = \underline{8}$

33  $72 \div 8 = \underline{9}$

34  $42 \div 7 = \underline{6}$

35  $14 \div 2 = \underline{7}$

36  $27 \div 9 = \underline{3}$

## Math Fact Involving “Double Numbers”

A-WIA 9

The addition and multiplication facts that involve “double numbers” (for example:  $2 + 2$  or  $5 \times 5$ ) are easier to memorize because there are only two numbers that you have to associate. It is also easier to memorize the subtraction and division facts that go along with them because there is only one other fact in the “fact family” instead of two.

**Instructions:** Use the Addition Facts given to figure out the answers for the Subtraction Fact in the same “Fact Family”.

<b>1</b>	$2 + 2 = 4$	<b>2</b>	$3 + 3 = 6$	<b>3</b>	$4 + 4 = 8$	<b>4</b>	$5 + 5 = 10$
	$4 - 2 = \underline{2}$		$6 - 3 = \underline{3}$		$8 - 4 = \underline{4}$		$10 - 5 = \underline{5}$

<b>5</b>	$6 + 6 = 12$	<b>6</b>	$7 + 7 = 14$	<b>7</b>	$8 + 8 = 16$	<b>8</b>	$9 + 9 = 18$
	$12 - 6 = \underline{6}$		$14 - 7 = \underline{7}$		$16 - 8 = \underline{8}$		$18 - 9 = \underline{9}$

**Instructions:** Use the Multiplication Facts given to figure out the answers for the Division Fact in the same “Fact Family”.

<b>1</b>	$2 \times 2 = 4$	<b>2</b>	$3 \times 3 = 9$	<b>3</b>	$4 \times 4 = 16$	<b>4</b>	$5 \times 5 = 25$
	$4 \div 2 = \underline{2}$		$9 \div 3 = \underline{3}$		$16 \div 4 = \underline{4}$		$25 \div 5 = \underline{5}$

<b>5</b>	$6 \times 6 = 36$	<b>6</b>	$7 \times 7 = 49$	<b>7</b>	$8 \times 8 = 64$	<b>8</b>	$9 \times 9 = 81$
	$36 \div 6 = \underline{6}$		$49 \div 7 = \underline{7}$		$64 \div 8 = \underline{8}$		$81 \div 9 = \underline{9}$

## “Doubles” Facts Practice

A-WIA 10

**Instructions:** This is a mixture of addition, subtraction, multiplication and division problems involving the “doubles facts” described on the previous page. **Caution!** Look carefully at each operation symbol before answering!

1  $5 + 5 = \underline{10}$

2  $6 - 3 = \underline{3}$

3  $4 \times 4 = \underline{16}$

4  $25 \div 5 = \underline{5}$

5  $6 + 6 = \underline{12}$

6  $9 + 9 = \underline{18}$

7  $16 \div 4 = \underline{4}$

8  $10 - 5 = \underline{5}$

9  $36 \div 6 = \underline{6}$

10  $7 \times 7 = \underline{49}$

11  $3 + 3 = \underline{6}$

12  $9 \div 3 = \underline{3}$

13  $5 \times 5 = \underline{25}$

14  $12 - 6 = \underline{6}$

15  $81 \div 9 = \underline{9}$

16  $8 + 8 = \underline{16}$

17  $2 + 2 = \underline{4}$

18  $49 \div 7 = \underline{7}$

19  $4 - 2 = \underline{2}$

20  $14 - 7 = \underline{7}$

21  $6 \times 6 = \underline{36}$

22  $7 + 7 = \underline{14}$

23  $18 - 9 = \underline{9}$

24  $2 \times 2 = \underline{4}$

25  $64 \div 8 = \underline{8}$

26  $3 \times 3 = \underline{9}$

27  $16 - 8 = \underline{8}$

28  $8 - 4 = \underline{4}$

29  $8 \times 8 = \underline{64}$

30  $4 \div 2 = \underline{2}$

31  $9 \times 9 = \underline{81}$

32  $4 + 4 = \underline{8}$