Fact Families     Fact Families     Fact Families     Fact Families     Fact Families     Fact Families

**CREATIVE CONSTRUCTIONS: STUDENT-MADE CHALLENGE BOOKLETS FOR MATH IN THE PRIMARY GRADES**

# FACT FAMILIES

$$5 + 2 = 7 \qquad 2 + 5 = 7 \qquad 7 - 5 = 2 \qquad 7 - 2 = 5$$

## TEACHER'S REFERENCE PAGES:
# FACT FAMILIES

## BACKGROUND INFORMATION:

A fact family is a related group of addition/subtraction equations or multiplication/division equations. All of the equations in a fact family contain the same three numbers. This unit will focus on fact families using addition and subtraction. However, student pages featuring multiplication and division have also been included for your use with older or more advanced students.

With addition and subtraction, a fact family contains two "parts" equaling the same "whole". Many fact families contain four equations (two each of addition and subtraction). However, fact families showing "doubles" only have two equations. Here are some examples of fact families:

| | | | |
|---|---|---|---|
| $5 + 3 = 8$ | $7 + 2 = 9$ | $2 + 2 = 4$ | $6 + 0 = 6$ |
| $3 + 5 = 8$ | $2 + 7 = 9$ | | $0 + 6 = 6$ |
| $8 - 5 = 3$ | $9 - 7 = 2$ | $4 - 2 = 2$ | $6 - 0 = 6$ |
| $8 - 3 = 5$ | $9 - 2 = 7$ | | $6 - 6 = 0$ |

# UNIT THREE: FACT FAMILIES

## GETTING STARTED:

Before your students create this booklet, be sure that they've had many hands-on opportunities to explore fact families and the concept of "part/part/whole". Further explore "Fact Families" with your students by working through page 52 together. (For multiplication and division, use page 64.) If possible, make an overhead of page 52 for your students to follow. (If this is not possible, simply replicate the page on the chalkboard or chart paper.) The students should record the answers on their pages as you record your answers. Each student will need his own copy of this page. To begin, choose some counters. Explain that this number of counters is the "whole" from which you will create two "parts". Divide the counters into two piles. Explain that these are the "parts" that make the "whole". Fill in the box on the roof of the house using these numbers from the counters. Next, use the numbers to create the four equations of your fact family. For each equation, make a matching illustration in the blank space provided in the box.

## MORE PRACTICE:

Use pages 53 – 63 to increase understanding of and build interest in fact families. Each of these pages has a different focus as highlighted below:

    📄 Pages 53 - 55 — sorting facts into families

    📄 Pages 56 - 58 — using fact families to compute

    📄 Pages 59 - 63 — creating fact families from given sets of numbers

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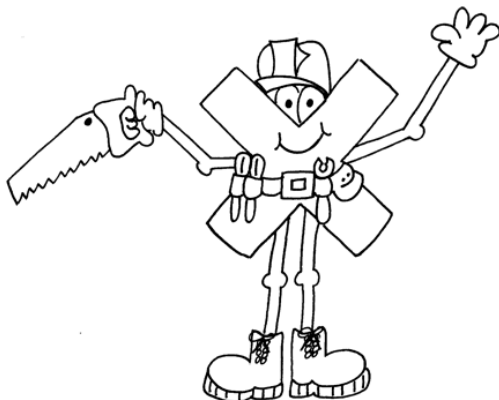
### For multiplication and division…

…use pages 65-74. Like the addition and subtraction reproducibles, each of these pages has a different focus as highlighted below:

    📄 Pages 65 - 67 – sorting facts into families

    📄 Pages 68 - 70 – using fact families to compute

    📄 Pages 71 - 74 – creating fact families from given sets of numbers

# UNIT THREE: FACT FAMILIES

## READY TO CONSTRUCT THE BOOKLET:

### ✎ Creating the Rough Draft

Familiarize your students with the booklet page. As with many of the units in this book, the students create their pages by beginning with the **answer** and working backward from there. Using an overhead copy of page 75 (or a chalkboard replica), create a fact family with your students. (Hint: Call on a volunteer to give any equation and go from there.) Write each of the fact family's equations at the bottom of the page in the answer box. Then write the fact family's three numbers on the lines provided in the answer box.

Now that you have the **answer**, you can create the **problem**! To do this, write each of the fact family's equations randomly on four of the eight lines. Next, call on volunteers to give equations that are **similar** to the ones in the family. Write these facts in the remaining four spaces. Explain that these new equations will "camouflage" the family's equations, making them harder to see. After you have completed page 75 as a class, give each student his own copy. The students should complete their pages following the same steps you did as a class. When a student's page is complete, check it for accuracy and assist as needed.
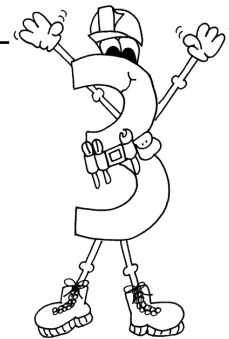


### ✎ The Final Copy

Once a student has completed a page, use a bold marker to strike over his answer box. Give the student a new copy of page 75 on which to copy all of the information except the answer box. Once again, check the work for accuracy and assist when necessary.

# UNIT THREE: FACT FAMILIES

✎ **Making the Booklet**
To get the completed page "copy-ready", have each student trace over his information with a black marker. Next, compile all student pages. Add the "Sample" from page 76 and the cover from page 77. Copy and staple a booklet for each student after writing the due date on the cover. Finally, attach a copy of the parent note from page 78 to each student's booklet and send it home for completion.

## THE SINGLE-PAGE OPTION:

To use the single-page option, follow all of the "Ready to Construct the Booklet" directions until you reach "Making the Booklet". At this point, have all students switch pages with one another. Attach a copy of the parent note found on page 79 to each student's page. Before taking the page home for completion, each student should write his name and the due date on the parent letter.

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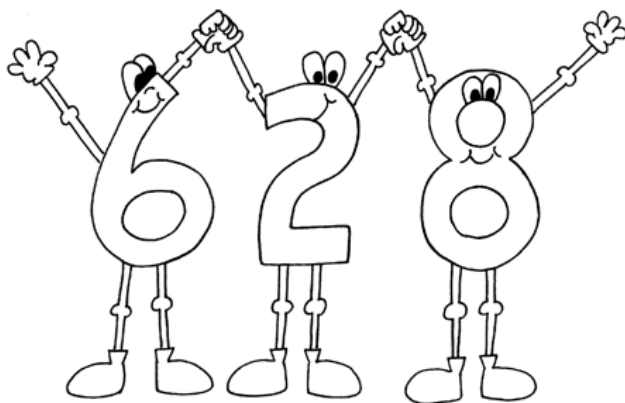
### REMEMBER

These booklets or student pages can be completed in class if you prefer. Here are some ideas:

▤ Use these booklets/pages as a daily math warm-up. Give the students a few minutes before each math lesson to work on the booklets/pages.

▤ Devote a few minutes of each daily math lesson to booklet completion.

▤ Use the booklets/pages as a fun way for students to fill free time when all other work is completed.

For all of the above ideas, differentiate to meet the needs of your students by giving them the option of working individually, with a partner/small group or with you if necessary.
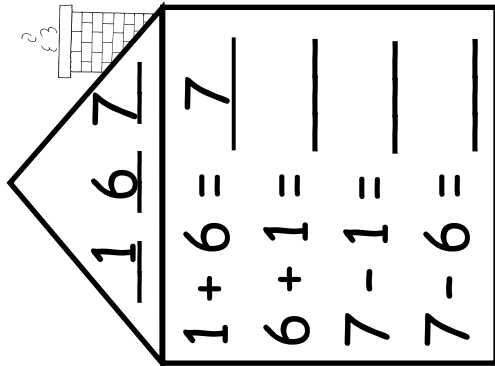
Name _____

# Fact Families
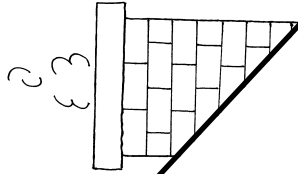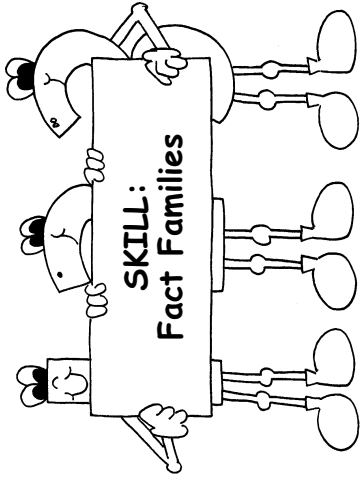
| Whole | |
|-------|---|
| Part | Part |
| _____ | _____ |

_____ + _____ = _____

_____ + _____ = _____

_____ − _____ = _____

_____ − _____ = _____

Name _____
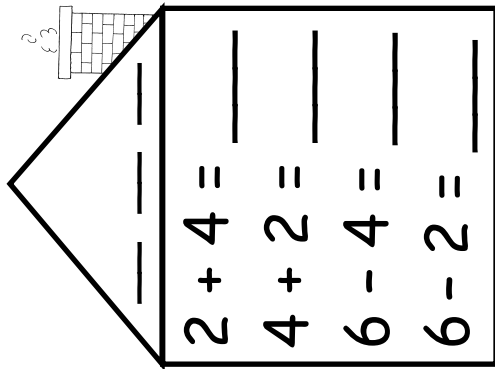
# Fact Family Figuring!

Compute using fact families.

___ ___ ___

5 + 6 = ___
6 + 5 = ___
11 - 5 = ___
11 - 6 = ___

___ ___ ___

5 + 5 = ___
5 + 5 = ___
10 - 5 = ___
10 - 5 = ___

___ ___ ___

2 + 4 = ___
4 + 2 = ___
6 - 4 = ___
6 - 2 = ___

___ ___ ___

3 + 6 = ___
6 + 3 = ___
9 - 6 = ___
9 - 3 = ___

_1_ _6_ _7_

1 + 6 = _7_
6 + 1 = ___
7 - 1 = ___
7 - 6 = ___

___ ___ ___
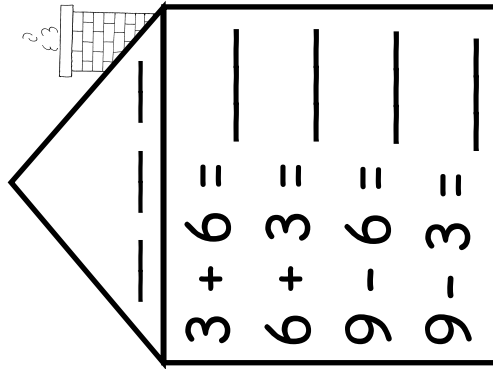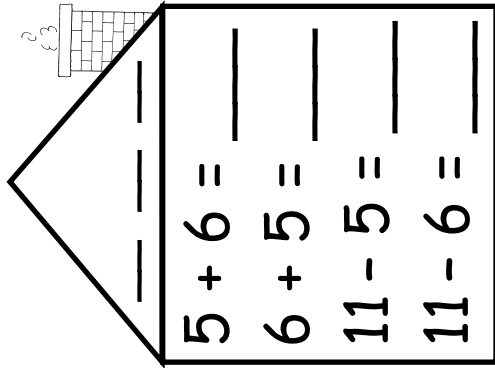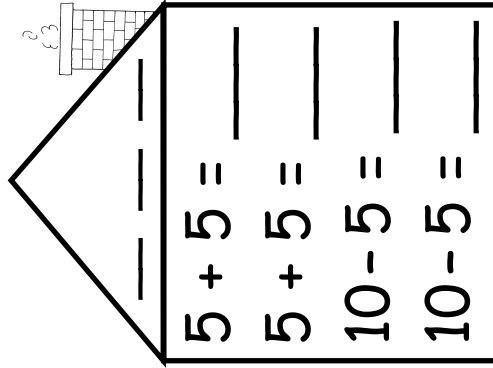
3 + 5 = ___
5 + 3 = ___
8 - 3 = ___
8 - 5 = ___

Tricky! What is different about the last family? Explain on the back of this sheet.

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Name _____

- Choose 3 numbers to make a family.
- Cut and glue.
- Write the 4 equations.
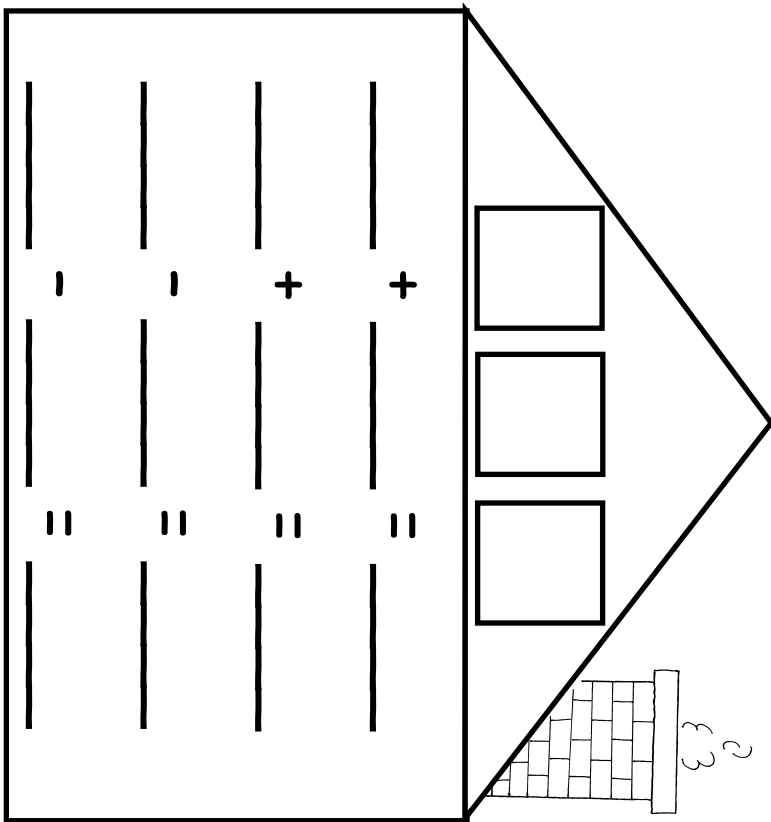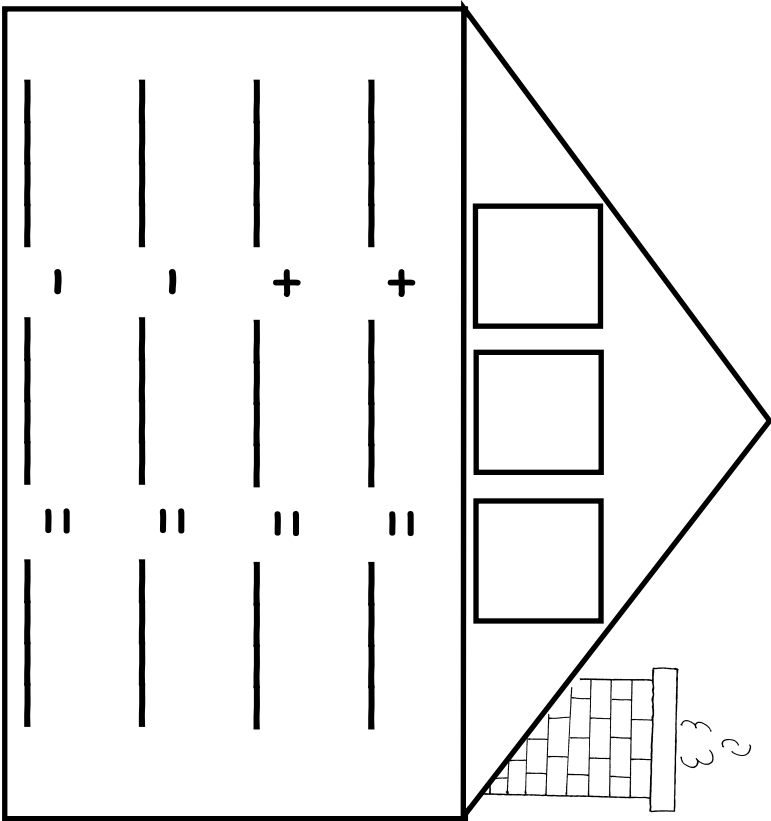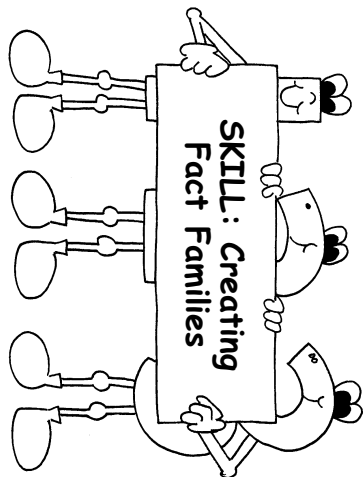
|   +   | = |
|   +   | = |
|   -   | = |
|   -   | = |

|   +   | = |
|   +   | = |
|   -   | = |
|   -   | = |

| 1  | 2  | 3  | 4  | 5  |
|----|----|----|----|----|
| 6  | 7  | 8  | 9  | 10 |
| 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 |

SKILL: Creating Fact Families

Name _____

# Puzzling Fact Families!

- Find a family.
- Circle the family.
- Write the equations.

**ACROSS**

```
5 + 4 = 9
4 + 5 = 9
9 - 4 = 5
9 - 5 = 4
```

```
__ + __ = __
__ + __ = __
__ - __ = __
__ - __ = __
```

```
__ + __ = __
__ + __ = __
__ - __ = __
__ - __ = __
```

**RULES**

- The numbers can be in any order in the puzzle (Part-Part-Whole OR Part-Whole-Part OR Whole-Part-Part).
- The family's numbers must touch.
- 3 families must go **across**.
- 3 families must go **down**.

| 2  | 13 | 2  | 11 | 15 | 9  | 17 |
| 8  | 2  | 10 | 12 | 6  | 20 | 8  |
| 6  | 1  | 5  | 3  | 3  | 7  | 4  |
| 14 | 9  | 5  | 9  | 4  | 13 | 10 |
| 11 | 17 | 15 | 3  | 12 | 6  | 6  |
| 4  | 8  | 16 | 12 | 8  | 20 | 5  |
| 18 | 0  | 1  | 3  | 1  | 5  | 14 |
| 12 | 8  | 9  | 10 | 7  | 15 | 19 |

**DOWN**

```
__ + __ = __
__ + __ = __
__ - __ = __
__ - __ = __
```

```
__ + __ = __
__ + __ = __
__ - __ = __
__ - __ = __
```

```
__ + __ = __
__ + __ = __
__ - __ = __
__ - __ = __
```

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358

A fact family is hidden in these equations.
Write the family equations in the box below.

_____        _____

_____        _____

_____        _____

_____        _____
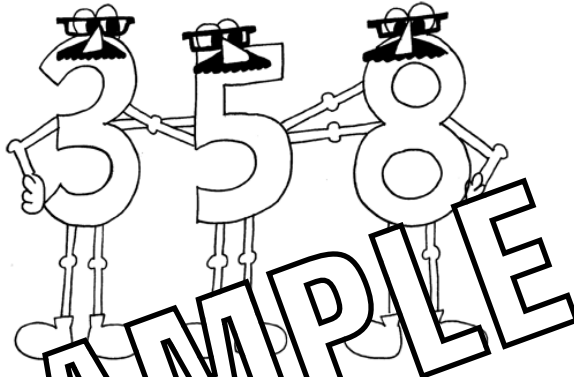
**ANSWER BOX**

The fact family has these numbers:

_____   _____   _____

Here are the family's equations:

_____        _____

_____        _____

**3 5 8**

A fact family is hidden these equations.
Write the family equations in the box below.

$6 + 3 = 9$         $9 - 3 = 6$

$9 - 5 = 4$         $3 + 6 = 9$

$6 + 2 = 8$         $4 + 2 = 6$

$9 - 6 = 3$         $7 + 2 = 9$

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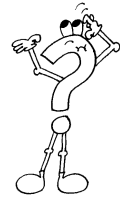
### ANSWER BOX

The fact family has these numbers:

___3___   ___6___   ___9___

Here are the family's equations:

$6 + 3 = 9$         $9 - 6 = 3$
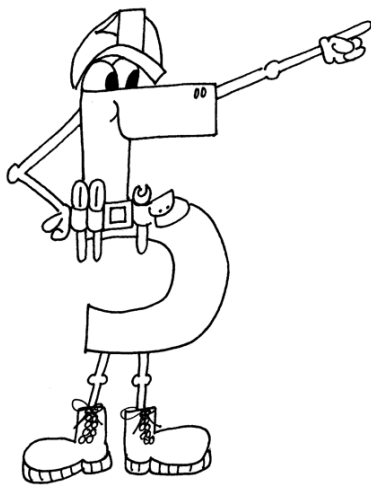
$3 + 6 = 9$         $9 - 3 = 6$
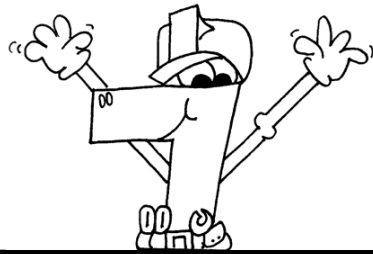
Fact
Families

Fact
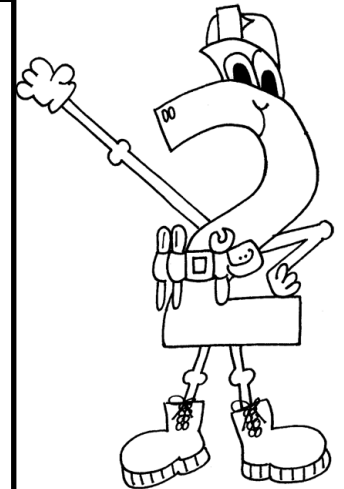Families

Fact
Families

Fact
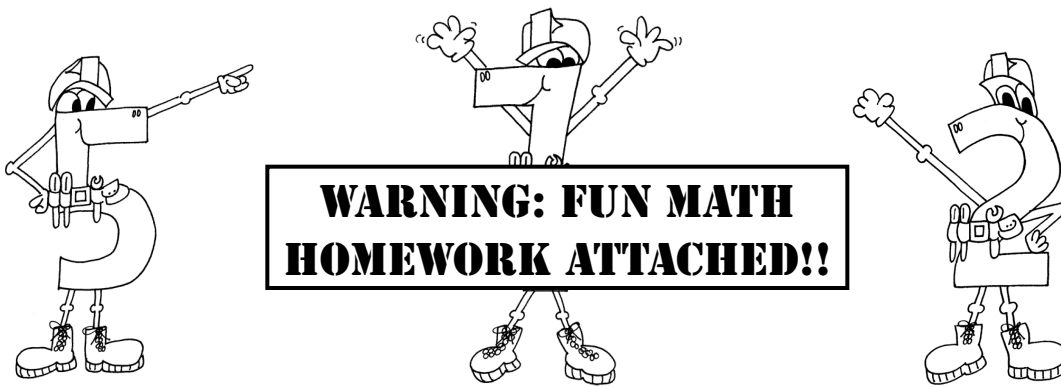Families

Fact
Families

Fact
Families

**CREATIVE CONSTRUCTIONS:**
**STUDENT-MADE CHALLENGE BOOKLETS**
**FOR MATH IN THE PRIMARY GRADES**

# FACT FAMILIES

$$5 + 2 = 7 \qquad 2 + 5 = 7 \qquad 7 - 5 = 2 \qquad 7 - 2 = 5$$

NAME:_____ DUE ON:_____

Dear Parents,

   Attached you will find a copy of the **Fact Families** booklet created by our own wonderful thinkers! This booklet will help your child to recognize equations that belong to the same fact family. (Please see the sample page of the booklet.) Feel free to complete this booklet as a family. If your child chooses to work alone, please be sure to check his work and assist when necessary. Math is so much fun!

                    Sincerely,


_____
                    Teacher


**Parent Information: Fact Families**

A fact family is a related group of addition/subtraction equations or multiplication/division equations. All of the equations in a fact family contain the same three numbers. With addition and subtraction, a fact family contains two "parts" equaling the same "whole". Many fact families contain four equations (two each of addition and subtraction or multiplication and division). However, fact families showing "doubles" only have two equations. Here are some examples of fact families:

| | | | |
|---|---|---|---|
| $5 + 3 = 8$ | $7 \times 2 = 14$ | $2 + 2 = 4$ | $6 + 0 = 6$ |
| $3 + 5 = 8$ | $2 \times 7 = 14$ | | $0 + 6 = 6$ |
| $8 - 5 = 3$ | $14 \div 7 = 2$ | $4 - 2 = 2$ | $6 - 0 = 6$ |
| $8 - 3 = 5$ | $14 \div 2 = 7$ | | $6 - 6 = 0$ |