

# Facts Practice Using Multiplication/Division Fact Triangles

This document contains directions and cut-out templates for the arithmetic facts from  $2 \times 2$  up to  $9 \times 9$  and their related division facts



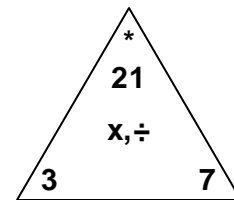
Warning!!! The reasoning (thinking) part of your brain can shut off under time pressure!!!

The goal of using these cards is to achieve accuracy and reasonable speed (3 to 5 seconds per fact). Use the cards to help assess which facts come reasonably quickly and which facts need more practice or connections to other known facts.

Whenever possible, connect thinking strategies with memorization such as  $6 \times 8$  is double  $3 \times 8$  or  $6 \times 8$  is 8 more than  $5 \times 8$

## What are Fact Triangles?

- Fact triangles are a type of flash card that group together families of related arithmetic facts ("fact families") like the one shown here:



## What are "fact families"?

- $3 \times 7 = 21$  is related to  $7 \times 3 = 21$  because multiplication is commutative ( $a \times b = b \times a$ ).
- $3 \times 7 = 21$  also is related to  $21 \div 7 = 3$  and  $21 \div 3 = 7$  because multiplication and division are inverse operations.
- So 3, 7, and 21 make up the following family of four facts:

$3 \times 7 = 21$
$7 \times 3 = 21$
$21 \div 7 = 3$
$21 \div 3 = 7$

- Learning basic arithmetic facts in families reinforces the relationship between facts and requires significantly less memorization of isolated facts!

## How might Fact Triangles be used to encourage thinking?

- Before practicing facts, the student must first understand what multiplication and division represent and how they are related to each other.
- In each triangle, the product (21 in the triangle above) is marked with a star (\*). After cutting out the individual triangles, have the student write the fact family on the back of each triangle.
- In partners, one person shows the front side of a triangle while covering one number. The other person must identify the missing number and the four facts in that fact family.

An example using the 3-7-21 card pictured above:

- Covering the starred number (21) requires the other person to find  $3 \times 7$  or  $7 \times 3$  and the related multiplication and division facts.
  - Covering the 3 requires the other person to find what number times 7 is 21 or 21 divided by 7 and the related multiplication and division facts.
- Reinforce that the starred number is called the product and the other two numbers are factors of that product.

