

TARGET



Objective

Given a set of 4 source numbers and a target number, use mathematical operations to combine the 4 source numbers into a mathematic expression(s) that exactly equals the target number.



Preparation

- Choose a target number and place that in the center circle or “bullseye” of the gameboard.
- Choose a set of 4 source numbers and place them in the 4 quadrants surrounding the center circle.
- Determine the math operations allowed/not allowed for the game. This may vary based on the needs and experience of your student.
- Decide if all source numbers must be combined into one expression or if there can be multiple connected expressions used to reach the target number.

Allowed Math Operations- Standard

Addition (+)

Subtraction (-)

Multiplication (×)

Division (÷)

Parentheses can be used to control the order of operations.

Advanced Math Operations - Extensions

Exponents (2 , 3 , etc.)

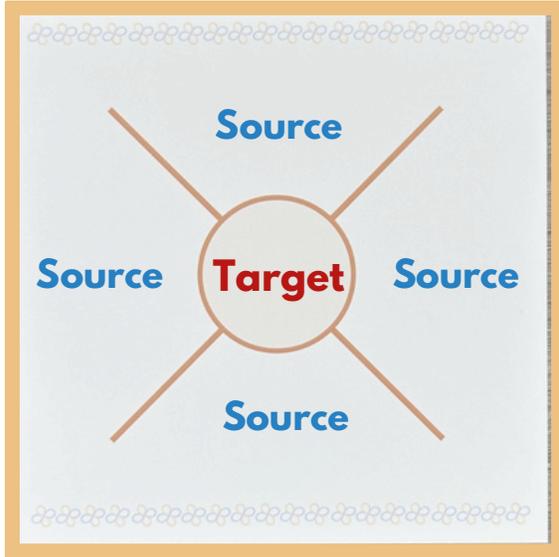
Roots ($\sqrt{\quad}$)

Decimals and/or fractions

TARGET



Rules for Play



- Write the target number and the source numbers on the gameboard.
- Review the allowed math operations for the game and how the expression must be written.
- Each source number must be used only once.
- Source numbers may not be reused or omitted.
- You must reach the target number exactly.
- No rounding or approximation.

Play & Mediation

Students work to hit the bullseye by trying various combinations of operations equal the Target number. Each attempt is written as a mathematical expression and solved. As they work through each attempt to reach the target number, educators encourage students to talk through their reasoning, explain their thinking, and engage in mediation questioning to help guide students in trying different approaches. All attempts are valuable, even incorrect ones, as they allow for the development and application of new strategies. (ex. working backward from the target, practicing patterns like “target \times a number” or “target \div a number”, etc.)

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Example Round

Target Number: 24

Source Numbers: {2, 3, 4, 6}

Solution attempts:

$6 \times 4 = 24$ but we still have 2 and 3 left.

Not valid yet.

$(6 \div 2) \times (3 \times 4) = 3 \times 12 = 36$ (too high).

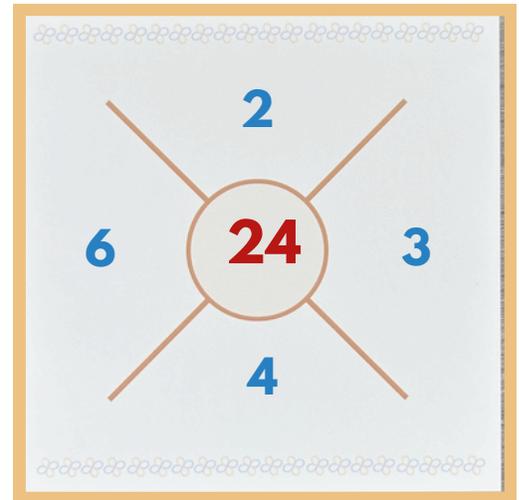
$(6 \div 2) \times 3 = 9 \times 4 = 36$ (still too high).

$(6 \times 4) - (2 \times 3) = 24 - 6 = 18$ (close).

$(6 \div 2) \times (3 \times 4) = 36$ (still off).

$6 - 3 = 3; 3 \times 4 = 12; 12 \times 2 = 24$ Correct! 3 expressions combined using all 4 source numbers

$(6 \div (3 - 2)) \times 4 = 24$ Correct! All source numbers used in one expression.



Variations

This is a very flexible game with multiple opportunities for variations that accommodate your students' needs. Here are a few ideas for easier or harder levels of play:

- **Easier**: 2-3 source numbers, only addition and subtraction, source numbers may be skipped or used more than once; multiple expressions used to get to the target
- **Advanced**: larger target numbers, advanced operations required/allowed, intermediate results don't have to be integers ($7 \div 2 = 3.5$); 5-6 source numbers

It can also be adapted for group or classroom play.

- **Individual Play**: Everyone works on the same numbers and the first to hit the Target earns a point.
- **Small Groups**: Teams collaborate to solve.