

# EQUATE THIS!

Developed by Cordelia Juhlke and Karl Juhlke

Art by Karl Juhlke

1-6 Players

20 Minutes/Player

Ages 6+

## Overview

Players create expressions to form an equation using BEDMAS over 5 rounds using number cards and operator cards. The player with the most points at the end of the 5 rounds wins the game.

## Setup

Give each player a bracket card. This card does not count towards each player's total operators, and it stays with the player for the entire game. Decide who goes first. At the beginning of each round, shuffle the number deck and the operator deck. Put both down on the table. Draw one face up number card and place it on the game mat. This is the **Target Number** that each player has to solve for. Each player is then dealt the appropriate number of number and operator cards based on the current round:

Round	Numbers	Operators	Required
1	3	2	2
2	4	3	4
3	5	4	6
4	6	5	8
5	7	6	10

Each player takes their cards and tries to form an equation using their numbers and operators to equal the **Target Number**. **Standard BEDMAS rules apply!**

## Gameplay

Each player can either draw 2 face down cards in any combination (number and/or operator) or the top card on either discard pile (1 total card). The player must discard down to the original number of number and/or operator cards dealt for the round. Gameplay proceeds clockwise around the table until a player places their equation down.

## Going Out

A player goes out by putting down a valid equation using the number and operator cards in their hand with at least the number of required cards (see round chart) that successfully solves for the **Target Number**. After playing the equation, players have a chance to challenge (see Challenging). After, the player discards down to the original amount of cards for the round and ends their turn. Following that, each player has one last turn (maximum 2 minutes) to place down a valid equation. They don't need to meet the required amount of cards to get the equation, but points will be deducted for every card they're below the required amount (see Scoring) to a minimum of 0 for the round.

## Challenging

If another player believes the equation to be false, they yell out "**This does not equate!**". The challenging player then has to prove the equation doesn't equate with the **Target Number** by writing the math down on paper, using a calculator/phone, etc. If the equation isn't valid, the equation's player has half of the points they would've scored deducted from their score. If the challenger is incorrect, they have half the points scored by the challenged player deducted from their score. Bonuses are only included on a valid equation.

## Scoring

Every player who plays a valid equation receives 2 points per card played. Players lose 1 point for every card below the required equation amount (see round chart). The least amount of points a player can score in a round is 0.

Bonuses are awarded each round for least operators used (5 points), and the most unique operators used (10 points). The most unique number of operators bonus is only used in games of 3 or more players.

## FAQs

### Q. How do I use BEDMAS?

The letters stand for **B** (*brackets*), **E** (*exponents*), **D** (*division*), **M** (*multiplication*), **A** (*addition*), and **S** (*subtraction*). All equations must be solved in this order. **NOTE: division/multiplication as well as addition/subtraction are interchangeable with each other**, meaning you solve for whichever comes first. For example,  $2 \times 6 - 2 + 15 / 5$ . We solve for  $2 \times 6$  then  $15 / 5$  since the multiplication came before the division. We then solve for  $12 - 2$  first then **add 3** since it's in that order. Here's sample equation:

$$((5 \times 6 / 2) - 10)^2$$

**Brackets:** The main brackets need to be solved before you can square the result. Each time you see brackets, start the BEDMAS process over again inside those brackets. Inside the first set of brackets, we see another set of brackets, so we go immediately to the second set of brackets and solve for that.

**Multiplication:** Since both multiplication and division exist inside the second set of brackets, we need to solve for them in the order they appear; in this case, we solve for multiplication first.  $5 \times 6 = 30$

$$((30 / 2) - 10)^2$$

**Division:** Now that we've dealt with the multiplication, we simply divide the two numbers to find the value.  $30 / 2 = 15$

$$(15 - 10)^2$$

**Subtraction:** We now take the number solved for inside the second set of brackets and subtract 10 from that.  $15 - 10 = 5$

$$5^2$$

**Exponent:** Exponent should come before division, multiplication, and subtraction, but because we had to solve for the brackets first, we end up doing it last here. We take the solution to the first set of brackets and square it.  $5^2 = 25$

$$25$$

The final answer to this equation is 25. Another solution would've been  $5^2$ , but that would gain you fewer points than the longer equation.

### Q. Are calculators, phones, or writing on paper permitted?

We highly suggest that players don't use any math aids, just as dictionaries shouldn't be used in word building games. However, depending on the age of the player, math aids may help younger players check their math as an educational tool.

### Q. Do I need 2 bracket cards to form a set of brackets?

No, you don't need two bracket cards to form a set of brackets. The bracket card is simply a bracket card to both open and close the bracketed area.

### Q. Can I place two numbers side by side?

Yes! You can place two cards side by side to form a larger number. For instance, placing a **14** and a **4** side by side will give you the number **144**.

### Q. How do exponents and roots work?

By themselves, both exponents and roots work as square (squared and square root). If you put another number after the exponent or before the root, you can get other exponents and roots such as cubed.

### Q. Can I place a number by a set of brackets to multiply?

Yes! Since you can do this using math, you can do it in the game. This is a clever way to use a bracket you're not using as multiplication. However, the multiplication won't count towards bonuses as you're not using a multiplication operator card.

## Variations

### Personal Mode

Every player creates the entire equation, including answer with their cards. The number needed for the equation does NOT include the answer.

### Dual Expressions

Similar to **Personal Mode**, **Dual Expressions** requires players to build two expressions (numbers and operators) that equal each other rather than building an expression that equals a number. (ie.  $3 \times 3 = 10 - 1$ )

### Solo Mode

Play the regular game without any bonuses, and you're limited to 5 turns each round. Have a dummy player score 13 points per round.