ABAKU

GAME RULES

(1) **Gather 1 to 3 suitable opponents.**
(2) Prepare the game. Each take 5 tiles to play with.
(3) During your turn you need to create at least one equation by placing tiles on the board. An equation must be made of a numerical expression that contains exactly one operation and its value (for example: 1 + 1 = 2).
(4) Read aloud all the equation(s) you have created.
(5) Count and record your points.
(6) Refill your rack (5 tiles in total).
(7) Let the next player (clockwise) take the turn.
(8) Take turns with your opponents until no tiles are left in the pouch and one of you places his last tile.
(9) Announce the winner – the player with the highest total score.

PREPARATION

Lay out the board, give each player a rack and mix all the tiles in the pouch.
Let each player draw one random tile from the pouch. The one who draws the highest number is the first to play.
Return the drawn tiles to the pouch and take **5** new tiles each – this time without others seeing the values.
You are ready to play now.

START OF THE GAME

The first player starts by placing an opening equation on the board so that one tile lays on the bonus square in the middle. The middle square provides a ×2 equation bonus (see Scoring – Bonus squares). In next moves, other players take turns clockwise and add their own equations to the stones already lying on the board. They do so following these rules:

CREATING THE EQUATIONS

1. You can use only **whole positive numbers.**
   (incorrect) 4 – 8 = – 4; 0,5 × 8 = 4; 8 ÷ 5 = 1,6 **(correct)** 8 – 4 = 4; 40 ÷ 8 = 5; 5 × 16 = 80

2. There are no visible mathematical signs in Abaku – your equations on the board are represented by a **line of numbers** and you **imagine the signs** between them. **This line of numbers represents the equation 4 + 8 = 12.**

3. Each equation must be read horizontally **left to right** or vertically **top to bottom**. The result must always be either on the right or on the bottom.
   (incorrect) 17 = 23 – 6; **(correct)** 23 – 6 = 17 or 23 – 17 = 6 or 7 + 16 = 23 or16 + 7 = 23, ..

4. You can use addition+, subtraction–, multiplication×, division÷, squares², cubes³ and roots of both √squares and ³√cubes.

5. The **0 cannot be used as a separate number**, not even in the result of your equation. You can use it only as a part of a multi -digit number.
   (incorrect) 0 × 5 = 0; 0,5 × 8 = 4; 5 + 0 = 5 **(correct)** 10 – 5 = 5; 5 × 8 = 40; 10 ÷ 5 = 2

6. Each equation can contain **only one mathematical operation** (i.e. there is only one mathematical operator, such as + or - before the = sign). However, the placed tiles can represent multiple equations at the same time (see Placing the tiles - e).
   (incorrect) 2 × 2 + 3 = 7; 12 ÷ 6 ÷ 2 = 1 **(correct)** 4 + 3 = 7; 12 ÷ 6 = 2

7. All the "old" tiles placed on the board in previous moves can be freely used in following moves as a part of new equations.

The original equation 1 + 2 = 3 is now seen just as tiles 1, 2 and 3. From now on, they can be used in various ways:

3 - 1 = 2 (a new tile is added from the left; two old tiles are used in the new equation)

2 × 3 = 6 (new tiles are added from the right; two old tiles are used in the new equation)

3 × 12 = 36 (new tiles are added from both sides of the original line; all the old tiles are used in the new equation)

PLACING THE TILES

a. All the tiles you place on the board cannot be replaced, reorganized or taken away. **They remain on the board until the end** of the game (with exception of Joker tile – see Joker).

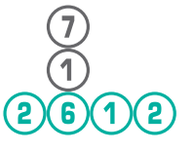
b. Within one move, you must place all the new tiles in **one row** (the same line or column). The tiles cannot be placed diagonally.

Although both the equations 1 × 6 = 6 and 6 – 3 = 3 are correct, the new (yellow) tiles weren't placed in one row and the move is not valid.

c. All the newly added tiles must be a **part of one equation** and they must always **contain or adjoin at least one tile lying on the board** already (except the opening equation).

Both newly added tiles (red) create valid equations with the tiles already present on the board: 8 – 6 = 2 and 6 ÷ 2 = 3. However, there is no equation that would include both new tiles at the same time. The move is not valid.

2 + 3 = 5 One old tile is a part of the new equation. The move is valid.



2 × 6 = 12; 7 – 1 = 6 One of the newly added tiles creates another valid equation with the old tiles adjoining it.

d. If you choose a suitable position for your tiles, sometimes you can **create several mathematic equations** within one move and gain extra points for them (see **Scoring**).

The combination 8412 is not chosen well – it creates only one equation: 8 + 4 = 12.

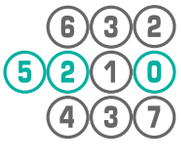
The combination 1248 is a better one – it creates three equations: 12 – 4 = 8; 2 × 4 = 8; 22 = 4.

e. Newly added tiles must always make valid equations with all the adjoining old tiles:

.The equation 3 – 1 = 2 is valid. The newly added tile (1) creates a valid equation with an adjoining old tile: √1 = 1. The move is valid.

The equation 3 – 2 = 1 is correct, but the new number 2 tile doesn't create any valid equation with the adjoining number 1 tile. That's why the move is not valid.

f. The exception from the previous rule is **number 0 –** it **doesn't have to** create equations with all the adjoining tiles. If it's the only tile adjoining the old tiles, it must create a new equation with them.



5 × 2 = 10; 6 – 2 = 4; 2^2 = 4
The newly added 0 is a part of a valid equation (5 × 2 = 10). At the same time is adjoins two old tiles (2, 7) It doesn't create any valid equations with them, but the move is still valid.

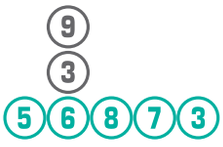
2 × 5 = 10, 10 – 8 = 2
The newly added 0 is a part of a new equation (5 × 2 = 10). At the same time it adjoins two old tiles (8, 2). It creates a valid equation with them (10 – 8 = 2). The move is valid.

SCORING

Základní zásady

1. You are awarded points after each your move. To get points, you must read aloud the equation(s) you have created.

2. You get a point for each tile used in the equation(s). This rule applies to all the equations created within your move.



56783 By this move, three equations are created: 5 + 68 = 73 (5 tiles – 5 points)
56 ÷ 8 = 7 (4 tiles – 4 points)
9 – 3 = 6 (3 tiles – 3 points)
Total score for this move: 12 points

3. The exception is the situation, when the very same tiles create several different equations (e.g. 981 which can be read either as 92 = 81 or 9 – 8 = 1). Then only one of the equations is awarded points.

Bonus squares

1. If you place a tile on a bonus square in your move, you get **extra points.** The bonuses can apply on one tile or on the whole equation.

Tile bonus – gives you ×2 or ×3 the points for the tile placed on the square.

Equation bonus – gives you ×2 or ×3 the points for the whole equation if one of the tiles of the equation is placed on the square. The starting square in the middle of the board provides ×2 equation bonus.

2. The effect of the bonus square applies only in the move when the tile is placed on it. If you manage to place an equation on both types of bonus squares at the same time, the tile bonus is applied first and then the equation bonus follows.

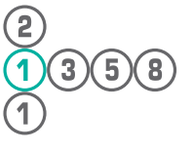
The tile (4) was placed on the ×2 equation bonus, tile 2 on the ×3 tile bonus.
4 × 3 = 12 / 2× equation (1 + 1 + 1 + (3× tile 1)) = 12 points
4 – 3 = 1 / 2× equation (1 + 1 + 1) = 6 points
3 – 1 = 2 / 1 + 1 + (3× tile 1) = 5 points
Total: 23 points

3. If you manage to place your equation on more than one equation bonus at the same time, the value of the bonuses is multiplied (For example two ×3 bonuses within one equation provide overall ×9 bonus on the equation.).

The Joker

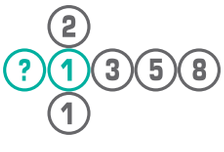
1. The Joker is placed on the board as a regular tile according to standard game rules. When placing the Joker, you must say aloud which number (0–9) it represents.
2. From now on, the Joker placed on the board represents an "empty spot". It **cannot be a part of a new equation** and **no adjoining tiles (1 - 9) can be added** to it. It must be **replaced** by a number tile first.

The player identified the Joker (?) as number 2 and created two equations: 2 ÷ 2 = 1; 2 + 3 = 5; the move is valid.



Replacing the Joker: The player replaced the Joker (?) by number 1 tile. It creates an equation with all the adjoining tiles: 2 – 1 = 1 and 13 – 5 = 8; the move is valid.

3. The player can keep the Joker for future use or use it immediately.



Replacing and immediate use of the Joker: The player replaced the Joker by a number 1 tile and at the same time he placed it and newly identified it as a number 6 tile. It created valid equations for all the adjoining tiles (2 – 1 = 1; 13 – 5 = 8; 61 – 3 = 58); the exchange and the move are valid.

4. Scoring: You are awarded 1 point for the Joker – the same as for any ordinary tile. However, the Joker left on your rack by the end of the game means 10 points taken away from your score.

CHANGING TILES AND SKIPPING A TURN

If you can't or don't want to play during your turn, you can either change your tiles or skip your turn. You can change 1 to 5 tiles. First, put aside the tiles you want to change, then take the same number on new tiles and finally put the old ones into the pouch. Exchange is considered a move, s**o you cannot place any equation in the same turn.**

Warning! If you **skip** your turn **three times in a row** while there still are tiles left in the pouch and at least one of your opponents has placed an equation in the meantime, **you lose the game**.

DISPUTE

If you decide to doubt correctness of the equation, you must do so before the next player starts his move. If you succeed in proving his move wrong, the player is awarded no points, he must take the newly added tiles back, and one point for each of these tiles is **taken away from his score**. However, if it was you who was wrong you **miss your next turn.**

END GAME(two possibilities)

1. There are **no tiles left** in the pouch and one of the players places the last tile from his rack. The player who has placed the last tile gets a reward of one point for each tile that his opponents have remaining on their racks. Other players take away a point from their scores for each tile remaining on their rack.
2. No player can place an equation, not even after they **all skip their turn twice**. No reward is given to anyone. Other players take away a point from their scores for each tile remaining on their rack.

WINNER The winner is the player who has the highest overall score at the end of the game.

ADDITIVE RULES AND GAME VARIATIONS You can adjust the rules or add new ones so that they suit your needs. Here are some tips:

Selected variations
Agree on using **only some mathematical equations**, as for example:
- only addition and subtraction
- only multiplication and division
- no roots or powers
- diagonally placed equations
- the result of the equation placed on the left or on the top
- your own rules

Alternative scoring

a) Advanced players' scoring
Instead of getting a point for each tile used in your equation, use the real value of each tile (so that for example 6 + 8 = 14 gives you 19 points). This scoring can be also used while playing with the Joker (see further). Then the Joker has the value of the number that it's used instead of.

Bonus squares also multiply the real value of the tiles or equations placed on it. The real value of tiles is used also at the end of the game when subtracting points for the tiles left on the rack. In this case, 30 points are taken away for the Joker left on your rack.

b) "Tile and operation" scoring
Get points only for the newly added tiles in each move. Add 2 points for each equation that was created during the move.
váš obrázek

12 ÷ 3 = 4; 1 + 2 = 3 Scoring: 7 tiles / 7 points + 2 equations / 4 points = 11 points 557 – 3 = 554
Only 3 points are awarded for the move.

c) "Equational" scoring
Get a point only for each equation created. Ignore the number of tiles used as well as the bonus squares.

9 + 33 = 42; 9 ÷ 3 = 3; √9 = 3; √4 = 2 Scoring: Four equations = 4 points.

d) Single player

No suitable opponent available? Or do you just want to practise?
You can play against yourself by the standard rules and try to reach as high a score as possible. Or you can take all the tiles from the pouch and try to place equations on the board and cover the largest area possible while leaving as few empty squares as you can. Or creating magical squares. You can use the back side of the board with a blank grid for that.

POSSIBLE AIDS

For the game itself or for verification you can use calculator or other available aids. The decision whether to use them or not is up to you and it requires agreement of all the players. It should be decided on before the game starts. At tournaments, the referee is usually the only one using any aids.

Strategy and tactics

- Bonuses: Their efficient use fundamentally influences the outcome of the game. (It is for example better to place the combination 936 with the 9 on ×3 tile bonus rather than on ×2 equation bonus.)
- Combination: Combine the numbers so that they create as many "inner" equations as possible both among themselves and the tiles already placed on the board.
- Placing: Place the tiles on the board in a way that creates as few possibilities for lucrative moves of your opponent. Simply – do not unnecessarily offer your opponent the bonus fields.
- Blocking: If you are not currently able to utilize the bonus fields, consider the possibility of blocking them for your opponent (this especially applies to the ×3 equation bonus).
- Zero: Placing zero can be sometimes difficult for beginners. Exchange it or watch your more skilled opponents and find out that zero can sometimes double your profit. (e.g. 38 + 2 = 40; 3 × 8 = 24 / 55 – 15 = 40; 55 – 1 = 54)
- Fortune favours the prepared mind: Do not rely on your lead in the middle of the game, but also do not lose your heart when it's the other way round. One ingenious move or lucky pick of tiles can turn the situation upside down. Don't give up. Strategy and tactics will quickly grow with your arithmetical skills. Count with it.

Contents of the box

1 game board
1 tile pouch
100 number tiles (10 from each number from 0 to 9)
1 Joker tile
4 tile racks
1 game rules

For 1 to 4 players, 5 years or older
To help you keep track of your score you can use also our special scoresheet – find it on www.abaku.org
Abaku online
Do you want to play Abaku online? Or do you want to play the game also at school?
Visit us on www.abaku.cz

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