

## Supplementary text

### Funny picture

- The Funny picture is a game (or puzzle) for one player.
- The user has to choose a question on a gameboard and then answer this question.
- Correct answer reveals the corresponding part of a hidden picture (math joke).
- There are two attempts allowed to answer each question.
- If both answers are not correct, the part of the picture is dimmed.
- When the puzzle is finished, you get the access to the answered questions again.
- The questions and the answers are randomized when the PDF is opened.

### Triangle

- This game is suitable for two players or two teams of players.
- The gameboard has the shape of an equilateral triangle with 21 fields. Each hexagonal field is attached to a question.
- Answering the question the player wins the field.
- The goal is to win fields which connect all three sides of the triangle.
- The players need both knowledge to answer question and good strategy for winning fields.
- After an incorrect answer the second player has a possibility to win this field.
- If a field remains unanswered, it can be randomly assigned to one of the players.
- The questions and the answers are randomized when the PDF is opened.

### Jeopardy

- Jeopardy is a two-players game
- There are four categories and three questions in each category. Each question is assigned with points according to the difficulty – 100, 200 and 300 points.
- Players choose questions. There are four categories with three difficulty levels in each category
- The points for correct answers are added to the score, points for incorrect answers are subtracted.
- The game finishes when all 12 questions are answered.
- The answers are randomized when the game is opened. The questions remain fixed.

## Puzzle game

- One-player matching type game (puzzle).
- Step by step, the player selects a field with one question and consequently with one answer until matching all of the pairs.
- It doesn't matter in which order the player makes pairs.
- No guessing! When matching the question and answer incorrectly (an error), the player is given one penalty point, and continues in the game.
- Each correct pair uncovers a part of a quote of famous mathematician.
- After finishing the puzzle you can enjoy the quote or look at your score on the next page.
- The questions and answers are randomized when the PDF file is opened.

## Benefits for teachers and students

Interactive games have many benefits for teachers and students. Let us list some of them:

- Materials cover thematically all secondary school curriculum.
- All types of games have uniform and simple control and attractive graphics.
- Thanks to the use of TeX typesetting system the mathematical expressions reach high typographic quality and are easily readable .
- All the materials can be accessed with free software (Adobe Reader) and used offline with no Internet access.
- After finishing a game the evaluation is shown (the number of correct answers etc). A student can go through all the questions again.
- You can play our games several times and the questions will be different. The questions for Triangle and Funny Picture games are assigned randomly from a database involving more questions than required for one run of the game. Consequently, these games behave as "new" games every time these games are opened. This random selection of the questions takes place when the file is opened. The only game with fixed questions is the Jeopardy game.
- No only the questions, but also the answers in all PDF files are randomized when the PDF is re-opened. In addition, in Puzzle games the questions are randomized too. Each student has a personalized version of the same game.
- Teachers can use the materials on an interactive whiteboard where the students choose the right solutions. An alternative is to present the materials using screen and dataprojector. In the latter case the students answer questions and the teacher marks their answer on computer. If a computer lab is available, students can work independently. The materials are good for home practice too. Thanks to interactivity and nice pictures the practice is funnier than regular homeworks or exercises.