# WPF PUZZLE GP 2016 COMPETITION BOOKLET

## Host Country: Serbia

### Nikola Živanović, Čedomir Milanović, Branko Ćeranić

**Special Notes**: The point values in a previous version of this booklet were incorrect. This booklet and the instruction booklet are correct.

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### 1-2. Letter Weights [Branko Ćeranić] (18, 45 points)

Write a number under each letter (in each cell) so that the numbers corresponding to the letters in each given word have the given sum. Different letters must have different numbers. The list of allowed numbers is given in a row underneath the cells.

**Answer**: Enter the contents of the cells, from left to right. Enter all digits for multi-digit numbers (for example, if the cell contents were 12, then 5, then 25, enter `12525`).

**Example Answer**: `25431`

| A | E | L | M | O | S | T |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**1 ➡**

ATM = 13
LLM = 13
LOS = 13
MOA = 16
SET = 9

| A | B | C | D | E | I | K | L | N | O | R | W |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

**2 ➡**

BEAR = 24
BLIND = 32
CORN = 11
END = 13
LONDON = 26
OWL = 27
WAKE = 36

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**ROUND 6**
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### 3. Letter Weights [Branko Ćeranić] (83 points)

**Answer**: Enter the contents of the cells, from left to right. Enter all digits for multi-digit numbers (for example, if the cell contents were 12, then 5, then 25, enter `12525`).
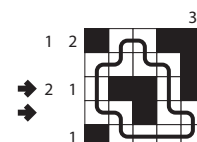
**Example Answer**: `25431`

| A | C | D | E | F | I | K | L | M | N | O | P | Q | U | V | W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

ALEF = 26
AQUA = 23
CAVE = 37
COMP = 46
CONE = 33
FLOW = 41
KIWI = 40
LEAP = 41
MULE = 31
PEAK = 32
POOL = 54
WIND = 34

### 4-5. Graffiti [Branko Ćeranić] (6, 11 points)

Blacken some cells in the grid and draw a closed loop through all other cells in the grid. The loop connects the centers of cells orthogonally, and never goes through a cell more than once. Some rows have number clues next to them. The numbers represent, in left-to-right order, the exact size of groups of consecutive black cells in those rows. Groups are separated by at least one non-blackened cell. As a special case, if the clue '0' is given, it means there are no blackened cells in that row. Similar clues may be given for some columns (using top-to-bottom order).

**Answer**: For each designated row, enter its contents from left to right. Use 'X' for a black cell, 'I' for a cell in which the loop goes straight, and 'L' for a cell in which the loop turns.
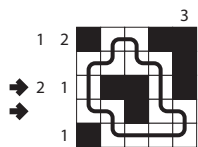
**Example Answer**: `IXXIX,LLXLL`

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## 6. Graffiti [Branko Ćeranić] (18 points)

**Answer**: For each designated row, enter its contents from left to right. Use 'X' for a black cell, 'I' for a cell in which the loop goes straight, and 'L' for a cell in which the loop turns.

**Example Answer**: IXXIX, LLXLL

## 7. Balance [Čedomir Milanović] (54 points)

Attach the given weights to the mobile at the diamond-shaped attach points (one at each point) such that the entire mobile balances. To balance, at each fulcrum (round black dot) the total torque (weight multiplied by distance from the fulcrum) on both sides of the balance must be the same. Ignore any weight of the rods themselves. Weights may be already attached for you.

**Answer**: Enter the order of the weights, from left to right. (Ignore the height of the weights.) Enter all digits for multi-digit numbers.
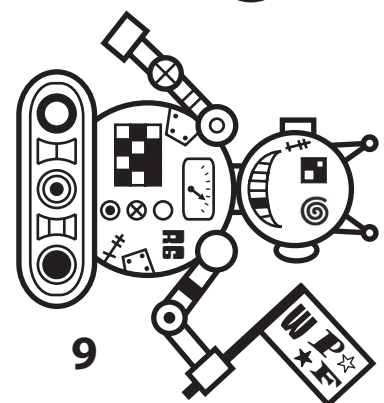
**Example Answer**: 25413
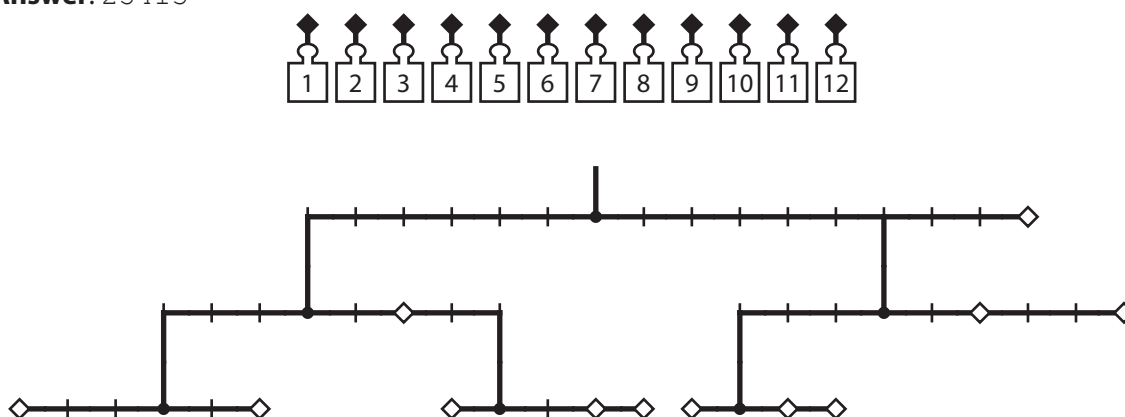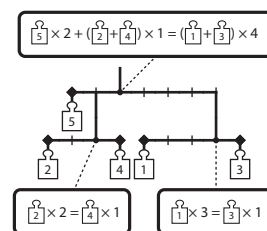
**8. Find the Pair [Čedomir Milanović] (22 points)**
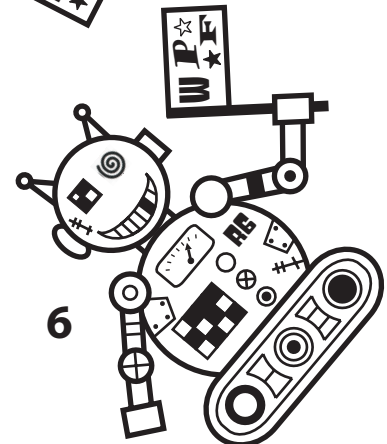
Two images are identical (except for reflections and rotations). Which two?

**Answer**: Enter the two numbers corresponding to the two identical images, the smaller number first.

**Example Answer**: 13

1

2

3

4

5

6

7

8

9

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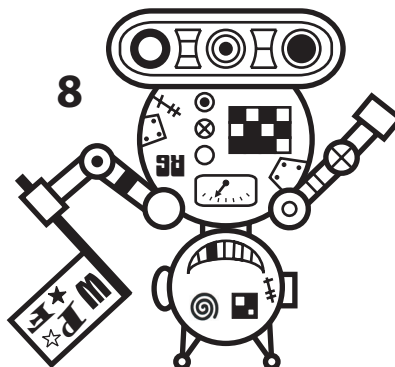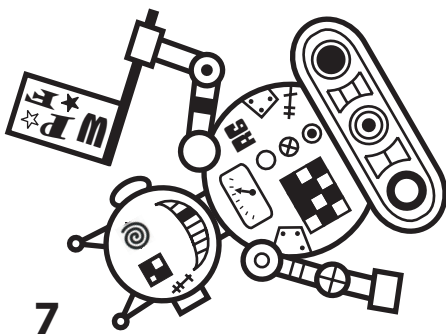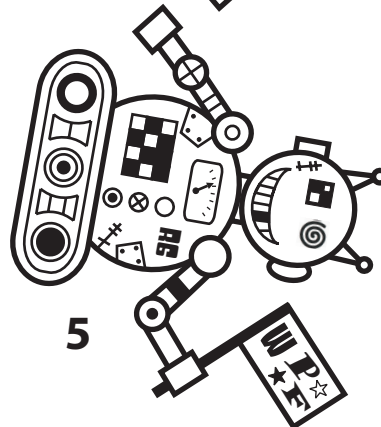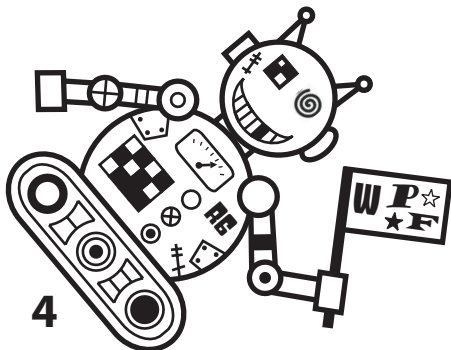
### 9. Word Search [Čedomir Milanović] (30 points)

Locate the list of words in the grid. Words always appear in a line in one of the eight standard directions.

**Answer**: Enter the unused letters in the grid. Enter the rows from top-to-bottom and each row from left-to-right.

**Example Answer**: AGLA

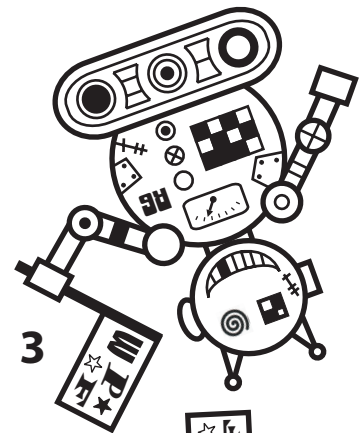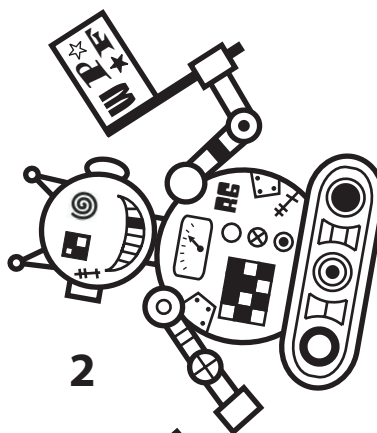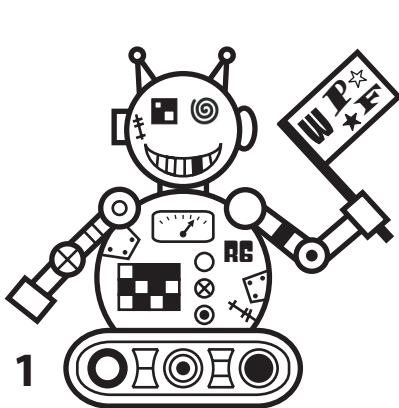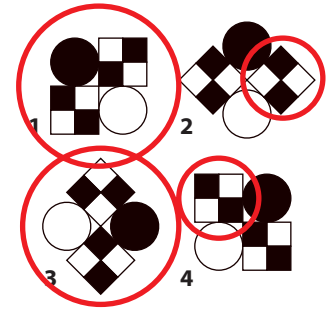| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | O | R | O | M | O | C | A | N | A | D | A | E |
| O | C | H | A | D | U | B | O | H | Q | C | G | K |
| A | G | L | Q | B | H | B | H | A | A | Y | U | Y |
| L | I | O | A | U | A | B | R | I | P | W | L | A |
| B | E | R | T | G | A | I | B | T | A | A | M | R |
| A | R | A | A | H | E | R | B | I | T | A | I | R |
| N | N | A | R | G | E | N | T | I | N | A | N | O |
| I | A | A | Z | S | L | A | E | A | M | D | M | D |
| A | I | R | H | I | I | U | P | S | P | A | I | N |
| N | M | U | I | G | L | E | B | A | N | O | N | A |

| | |
|---|---|
| ALBANIA | INDIA |
| ANDORRA | IRAN |
| ARGENTINA | IRAQ |
| BAHRAIN | ISRAEL |
| BELGIUM | ITALY |
| BHUTAN | KUWAIT |
| BRAZIL | LAOS |
| BULGARIA | LEBANON |
| CANADA | MALI |
| CHAD | NAMIBIA |
| COMOROS | OMAN |
| CUBA | PANAMA |
| EGYPT | QATAR |
| GABON | SENEGAL |
| GHANA | SERBIA |
| HAITI | SPAIN |
| | TOGO |
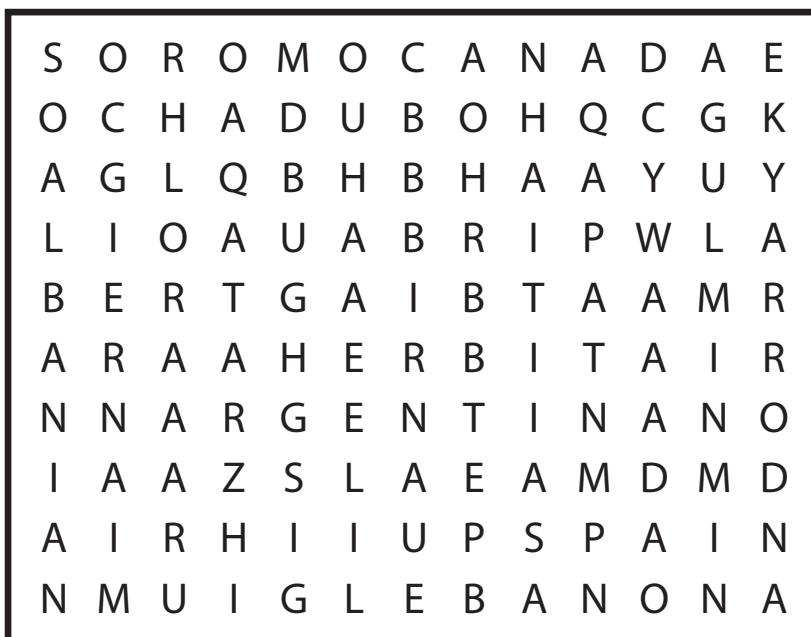
### 10. Bent Word Search [Čedomir Milanović] (39 points)

Locate the list of words in the grid. Words always appear in a bent line; they start in one of the eight standard directions, bend at right angles at exactly one letter (that is not the first or last letter), and continue in the new direction.

*Two words will not be found in the grid.*

**Answer**: Enter the two words that cannot be found in the grid, in alphabetical order.

**Example Answer**:
ALBA, BANG
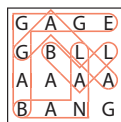
ALBA
BAGGAGE
BANAL
BANG
GALA
LAB

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | E | P | R | E | T | A | C | A | M | E | Z | A |
| N | O | I | G | A | T | O | C | O | M | A | L | G |
| H | N | L | A | E | L | H | H | N | R | L | I | P |
| C | L | L | Z | L | I | G | A | M | I | C | D | E |
| E | O | A | I | L | E | Z | A | G | L | H | O | L |
| Z | M | R | L | H | E | D | O | T | N | A | C | I |
| A | D | A | C | L | N | R | I | P | O | H | O | G |
| G | L | N | C | A | I | G | A | L | E | R | R | O |
| O | L | H | A | L | M | P | I | L | L | A | C | N |
| N | I | D | A | M | R | A | M | A | D | O | M | A |

ALLIGATOR
ARMADILLO
CAMEL
CATERPILLAR
CHINCHILLA
CROCODILE
GAZELLE
GORILLA
LION
LLAMA
MANDRILL
PELICAN

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ROUND 6
CASUAL

WPF
SUDOKU/PUZZLE
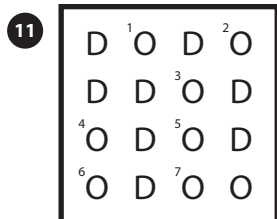GRAND PRIX
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## 11-12. Password Path [Nikola Živanović] (7, 32 points)

Find a path that starts in the upper-left letter and ends in the lower-right letter, that goes through each letter once and repeats only the password (given below the grid). The path may only travel in the eight standard directions and may *not* intersect itself.

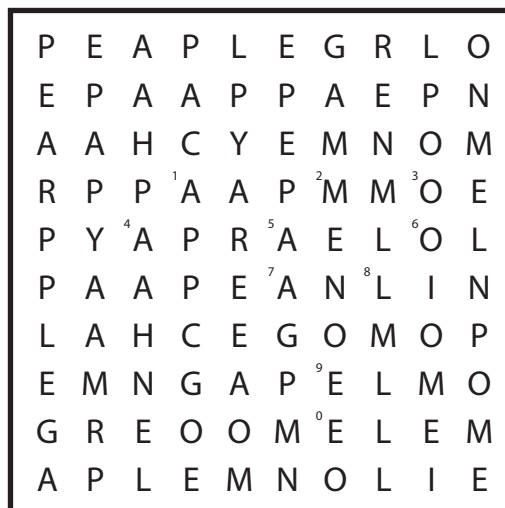*The small digits are only used for entering your answer.*

**Answer**: Enter the order in which the digits appear on the path.

**Example Answer**: 1463580972

PUZZLE

**11**

| D | O¹ | D | O² |
|---|----|---|----|
| D | D | O³ | D |
| O⁴ | D | O⁵ | D |
| O⁶ | D | O⁷ | O |

DO

**12**

| P | E | A | P | L | E | G | R | L | O |
|---|---|---|---|---|---|---|---|---|---|
| E | P | A | A | P | P | A | E | P | N |
| A | A | H | C | Y | E | M | N | O | M |
| R | P | P | A¹ | A | P | M² | M | O³ | E |
| P | Y | A⁴ | P | R | A⁵ | E | L | O⁶ | L |
| P | A | A | P | E | A | N⁷ | L⁸ | I | N |
| L | A | H | C | E | G | O | M | O | P |
| E | M | N | G | A | P | E⁹ | L | M | O |
| G | R | E | O | O | M | E⁰ | L | E | M |
| A | P | L | E | M | N | O | L | I | E |

PEACHPEARPAPAYAAPPLEGRAPEMANGOLEMONMELONPOMELOLIME

## 13-14. Arithmetic Square [Nikola Živanović] (7, 26 points)

Place each number from 1 to 9 into the cells (a different single number in each cell) so that the indicated equations/relations are correct. Evaluate from left-to-right and top-to-bottom (ignore the usual precedence of the operators).

*It is possible for expressions and partial expressions to be negative or non-integral.*

**Answer**: For each designated row, enter the contents of the cells, in order from left to right.

**Example Answer**: 987,643,521

➡ $\boxed{9} + \boxed{8} + \boxed{7} > 23$
  $+ \quad - \quad +$
➡ $\boxed{6} \times \boxed{4} \div \boxed{3} = 8$
  $\times \quad \times \quad -$
➡ $\boxed{5} \times \boxed{2} + \boxed{1} = 11$
  $= \qquad = \qquad =$
  $75 \qquad 8 \qquad 9$

**13a** ➡ $\boxed{\phantom{0}} - \boxed{\phantom{0}} \times \boxed{\phantom{0}} = -15$
  $- \qquad - \qquad -$

**13b** ➡ $\boxed{\phantom{0}} - \boxed{\phantom{0}} \times \boxed{\phantom{0}} = -16$
  $\times \qquad \times \qquad \times$

**13c** ➡ $\boxed{\phantom{0}} - \boxed{\phantom{0}} \times \boxed{\phantom{0}} = -12$
  $= \qquad\quad = \qquad\quad =$
  $-12 \qquad -15 \qquad -20$

**14a** ➡ $\boxed{\phantom{0}} - \boxed{\phantom{0}} - \boxed{\phantom{0}} = -6$
  $- \qquad - \qquad -$

**14b** ➡ $\boxed{\phantom{0}} - \boxed{\phantom{0}} - \boxed{\phantom{0}} = 0$
  $- \qquad - \qquad -$

**14c** ➡ $\boxed{\phantom{0}} - \boxed{\phantom{0}} - \boxed{\phantom{0}} = 3$
  $= \qquad\quad = \qquad\quad =$
  $-5 \qquad\quad 1 \qquad\quad 3$