

Birenbaum's Labors: Å Hunt. All Jubilate!

2023 FAMAT State Convention Interschool



A note from the author...

Welcome to the 2023 FAMAT State Convention Interschool test. This test is due on Friday, April 14 at 9:00 PM. Student Delegates will assist in the collecting and grading of these interschool tests. You must submit the last two pages of this document.

This test is in the format of a puzzle hunt. Your team will work together to solve as many of these puzzles as you can over the course of a week. Point values for each puzzle are listed on the right side of the first page of each puzzle as well as on the answer sheets. The maximum point total on this test is 500.

In a puzzle hunt, puzzles are presented to solvers, who need to figure out the mechanics of the puzzle and then extract a word, phrase, or cluephrase that can be submitted to an answer checker for confirmation. Many puzzle formats would be familiar to a solver (such as a crossword, dropquote, or Sudoku), but require an additional twist beyond the usual structure of those puzzles that you must discover. Others have a structure that the solver must figure out from scratch. The answers to groups of puzzles are grouped by one or more metapuzzles, whose structure relies on relating the answers to its feeder puzzles. This hunt contains one metapuzzle (“Papers, Please!” on the first puzzle page) and thirty-six feeder puzzles. **You can access a puzzle’s answer checker by clicking on its title.**

For tips and tricks on how to approach puzzle hunts, consider the [Have you tried... , list of puzzle tools](#) (I highly recommend Nutrimatic!), and [general resources](#) pages created for the MIT Mystery Hunt, one of the oldest and most complex puzzle hunts in the world. You may also wish to explore the [Puzzle Hunt Wiki](#). If you find yourself wanting to participate in more puzzle hunts after completing this Interschool, consider the [Puzzle Hunt Calendar](#). I also write a monthly [blog](#).

For this hunt, you are allowed to ask for help from your sponsors, friends, and family (if they are willing) as well as perform research on the Internet. However, you must leave the Internet as you found it at the time this hunt was sent out. In other words, you are not allowed to ask for help in online spaces such as Stack Exchange, Reddit, or puzzle-hunt-oriented chat servers.

~ Trevor

A special thank you to all of the following for assistance in constructing, editing, and test-solving these puzzles:

Timwi Heizmann
Giovanni Pagano

Skaldskaparmal
Deusovi

Teal & Kit
The C@r@line Syzygy

Galois
Team Duck Soup

~~~~~ Good luck, and have fun! ~~~~~

## Additional information

Throughout this hunt, you may assume the following information regarding notation and paradigms used.

- Enumeration and indexing are presented in parentheses-brackets format; parentheses refer to the length(s) of words in an answer, and brackets refer to the number of letters to index into an answer. Enumerations will indicate any included spaces and punctuation. Indexing ignores non-alphanumeric characters. For example, extracting the B from EUGENE V. DEBS could be indicated by (6 1, 4) [10]; note that B is the tenth *letter* in the string.
- When information is presented in alphabetical order, it needs to be reordered or sorted in a way relevant to the solving of the puzzle. No extractions are made by taking extracted letters and anagramming them without justification.
- Unless otherwise specified, the conversion between letters and numbers uses A1Z26 (as opposed to zero-indexing with A0Z25). Integers outside the range [1, 26] can be converted to letters by first repeatedly either adding or subtracting 26 until they fall into the proper range. The function  $\#(\ell)$  is used to convert from letters to numbers, and its inverse  $\#^{-1}(x)$  is used to convert back from numbers to letters.
- Puzzle titles may give hints as to the solving of a puzzle, including but not limited to mechanics, ordering, indexing, or extraction.

The email address [2023famatstatesinterschool@gmail.com](mailto:2023famatstatesinterschool@gmail.com) has been established. If you believe you have found an error with a puzzle, please send a clarification request to that email address. Beginning on Tuesday, April 11, you may request up to two hints per day. Make sure to include your current progress on the puzzle you are requesting a hint for (Google Sheets are highly recommended!). This email request must come from an account associated with your school, or from your sponsor. Hints will be responded to on a first-come, first-serve basis.

Ties will be broken by the tiebreaker question included on the answer sheet.

## META – *Papers, Please!*

150 Points

It's one week until States, and you've been preparing for a puzzle hunt instead of doing your homework! This has been a particularly inopportune time to do that, since you have essays to write for your Math, Anatomy, English, Art, and Astronomy classes. At this point, you probably don't have a chance of finishing all five essays, but you come up with an amazing idea! You'll write essays that can be submitted for multiple classes! You take a look at the topics you've been assigned to write about.

- Math: Discuss the properties of **square numbers at length**.
- Anatomy: Analyze the functions of **one of ten body parts with an extremely short name**
- English: Break down themes in a book that's **longer than “Homestuck”**.
- Art: **Start with the colors of the rainbow** and expand from there!
- Astronomy: **SPAAAAAAAAACE!!!**

You're hoping that all the answers of the puzzle hunt give you bits of information that can help you write your essays.

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Suddenly, the perfect plan hits you. You can write *one single essay* and submit it to all five classes at once! That means you'll be able to participate in the States Interschool (this test) and only have to worry about writing one essay at States after you're done with this Interschool. So you get to work on the Interschool, but there's still something nagging you, one tiny little worry about going to States. What is it?

## 1-to-9 Games

5 Points

$$\boxed{\phantom{0}} + \boxed{\phantom{0}} \times \boxed{\phantom{0}} = 73$$

$$\boxed{\phantom{0}} \div \boxed{\phantom{0}} \div \boxed{\phantom{0}} = 1$$

$$- + + \div \boxed{\phantom{0}} - \boxed{\phantom{0}} - \boxed{\phantom{0}} = -1$$

$$+ + \times \times \boxed{\phantom{0}} + \boxed{\phantom{0}} \times \boxed{\phantom{0}} = 21$$

$$\div - - + + \boxed{\phantom{0}} \times \boxed{\phantom{0}} \times \boxed{\phantom{0}} = 70$$

$$- - + + \boxed{\phantom{0}} - \boxed{\phantom{0}} + \boxed{\phantom{0}} = 6$$

$$= = = = \boxed{\phantom{0}}$$

$$= = = = \boxed{\phantom{0}}$$

$$\boxed{\phantom{0}} - \boxed{\phantom{0}} \div \boxed{\phantom{0}} = -4$$

$$\boxed{\phantom{0}} \times \boxed{\phantom{0}} - \boxed{\phantom{0}} = 41$$

$$\times + \times - \boxed{\phantom{0}} + \boxed{\phantom{0}} + \boxed{\phantom{0}} = 22$$

$$\times + + - \boxed{\phantom{0}} \times \boxed{\phantom{0}} \div \boxed{\phantom{0}} = 1$$

$$+ \div + \div \boxed{\phantom{0}} - \boxed{\phantom{0}} \times \boxed{\phantom{0}} = -5$$

$$+ + + - \boxed{\phantom{0}} - \boxed{\phantom{0}} + \boxed{\phantom{0}} = 14$$

$$= = = = \boxed{\phantom{0}}$$

$$= = = = \boxed{\phantom{0}}$$

17

18

-1

23

12

-9

## 200-Meter Heardles

5 Points

[Link to audio](#)

(2 2 1 2 1) [3]  
(4 1'5) [7]  
(4 4 4) [7]  
(3'1 4 3 6) [9]  
(5 6 3 4) [12]  
(5 3 3 5) [8]  
(5) [2]  
(5 6 4) [3]  
(6 4 4 6) [17]  
(5 2 3 5) [1]  
(8 2 6) [2]  
(5 5 1' 4) [14]  
(3 5 9) [5]  
(13) [3]  
(2 4'1 5 3 4) [8]  
(2 4 4 3) [2]

### 3 Billion, Gagillion, Fafillion, Shabadabalo, Shabadamillion, Shabaling, Shabalomillion... Factorizations

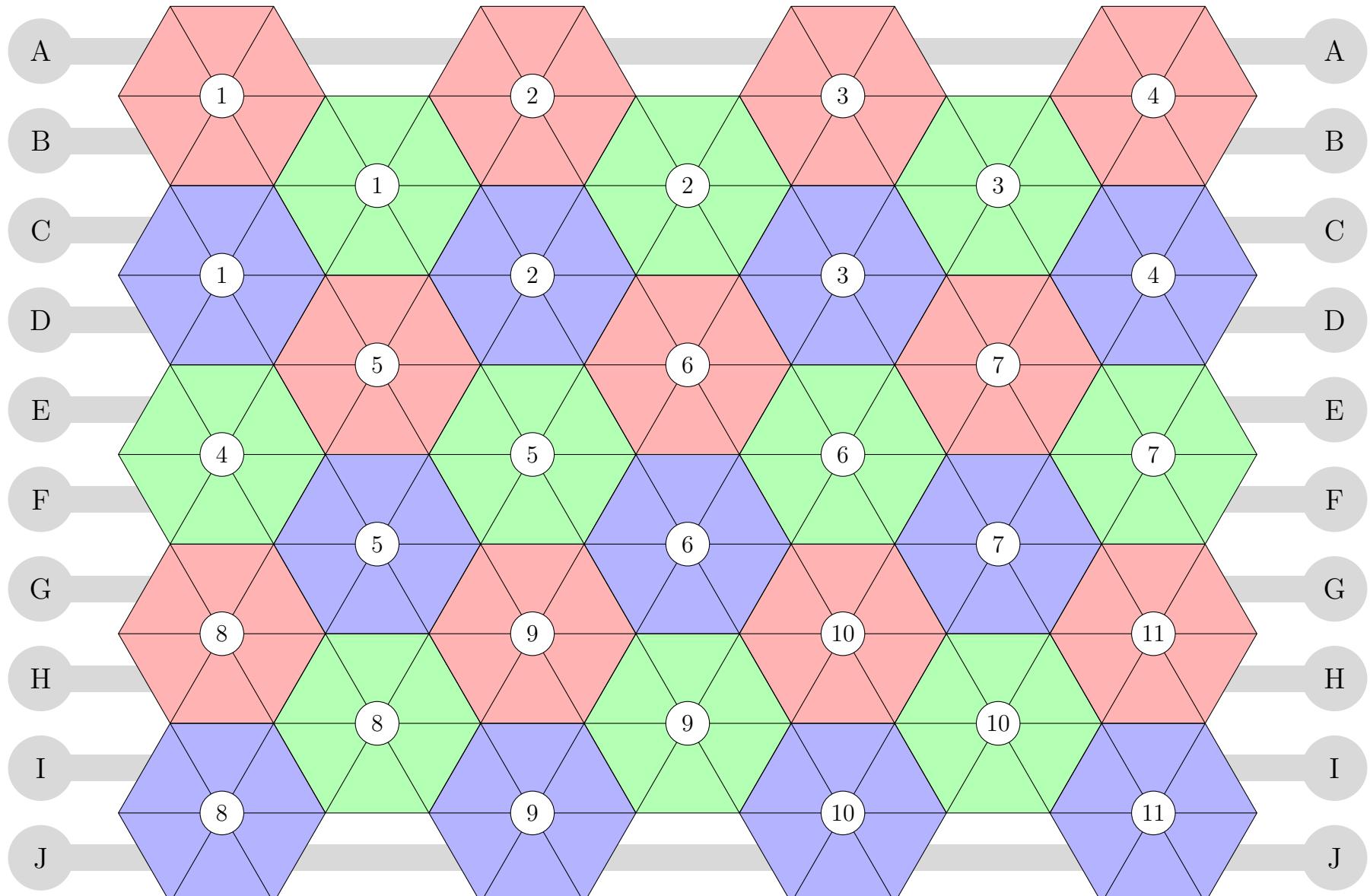
10 Points

3039527643222829918847386895141904697705555765089092913165900353589763858693717452468003020437412925 ...  
1669964508298956803381461377362980278097904448235757522969934493974438887528906554012709576982734679 ...  
9918465840551194927006932156246320918174285968940054701335536655690005406387674288638851080434203672 ...  
5967613014361965378837312984501525552122566657938341328352234215533278831674310939908296301793055148 ...  
2760589739512342477391764909462857196052982152699966590321265209884548908440330680659728866160782785 ...  
0538665800117655285319410091869160185147073823869409269829107135681353610671309226530744148263153102 ...  
0065434462139745807159021518092637456483324993171271812817634393921783461867463570897102804545000698 ...  
4827023337915430098045782688923677184794575807692304965130855209421169089470634408899442534706877277 ...  
0507062864218492358833930977542704008513062541570507839718697037731936565453513399870600481490703797 ...  
6089875018482517720606753722600181137149980349355282272077153283847380559600561783366006156101327024 ...  
3569436093726726908052274383077075782135274485777519436772077384423712279333587857254340287929542547 ...  
1060803913468246872008556526843102156138514386712219091779590974863318086312913441381414976951039377 ...  
5876214043568395990102996330773991795496506423122292662200919392066888978800991369011526729531694715 ...  
1521601480759653717586317761009105197092402438108176695972083941256370428933839435543636418097529954 ...  
0514223021955180733040380277202471234125939040944785721723843297735249743130430283955478276111278399 ...  
8507810232506230255703834542060306642294994735243906342814113043435998155758594083748335741032272589 ...  
8190415686288131481513859565305866276263026133930183853040191833669966102431895872146077096347535414 ...  
6482288686482146166872304877726815623211207989328780694892022232823810244757587562123122369685730256 ...  
36096499380813936408741011855274811546354053750000

(1850) → (165) → (58) → (10)

# A Walk in a Rows Garden

15 Points



## Rows

- A. Certain seabird / Teamsters union [abbr] / Pain relieving medication
- B. Required / Restrained, like a giggle / Isometric video game featuring an anthropomorphic fox
- C. Home of the Lightning / A group's plan to do something illegal / Make extremely angry
- D. Location that services vertically-lifting aircraft / Conference for training or discussion / Lacking courage
- E. Enlisted soldier who gains position through promotion [abbr] / Private, secluded place / What an IDE and the EPA have in common
- F. Think about [2 wds] / In the "Canterbury Tales", Robin / People with reddish-brown hair [slang]
- G. Washington's took 36 years to build / 24 as seen on a carton of eggs [2 wds] / Period that included the reign of Henry VIII
- H. Four-membered organic ring containing two oxygen atoms / Belted hunter / Canadian whisky distiller
- I. "wow. such clue." speaker / Copy of X in the "Mega Man" series / Past participle and present, e.g. [2 wds]

J. Possessor / Division I conference including Seattle University [abbr] / She launched Hephaestus off Mount Olympus

## Petals

- 1. Extract instructions (1/3)
- 2. Base two
- 3. Dutch eleven (as a football team)
- 4. City known for its canals
- 5. Resident of a city with a leaning tower
- 6. Self-proclaimed "Rap God"
- 7. Comune in Red-4
- 8. Set with an associative binary operation and an identity element
- 9. Renter
- 10. A short, light nap during the day
- 11. Tool used to jam a charge into a muzzle-loading firearm
- 1. Leafless flower stalks coming directly from a root
- 2. Strong distilled liquor such as whisky or gin
- 3. Plowed, as earth
- 4. Extract instructions (2/3)
- 5. The last few inches of the large intestine
- 6. Last MLB player to wear #42
- 7. Namesake of equation that calculates reduction potential of a reaction
- 8. Selective New Hampshire boarding school
- 9. Small, single-stranded circular RNA pathogen
- 10. Norwegian who sang at Eurovision 2016
- 1. Friend of Louise played by Geena Davis
- 2. Makes a sound through the nose to express derision
- 3. Coal mine oxygen indicator
- 4. Site of a wartime human rights convention
- 5. It can be measured in decibels or cubic meters
- 6. "Yes sir!" [2 wds]
- 7. Linux distribution based on Debian
- 8. Extract instructions (3/3) [2 wds]
- 9. "Roots" executive producer
- 10. A whale's launch out of water
- 11. Rubs out

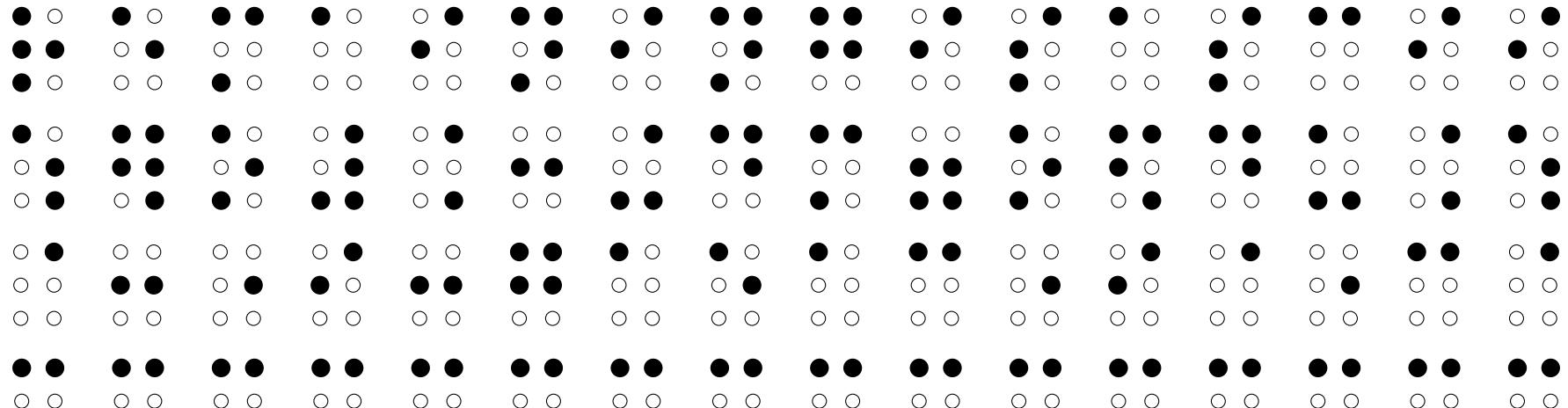
## Answers in the Form of a Question

5 Points

- |                                |                                         |
|--------------------------------|-----------------------------------------|
| (3 2 1 4 4?) [11]              | Let me count the ways.                  |
| (2 4 3 3 3 3 2, 4'1 1 5?) [22] | You just say bingo.                     |
| (4'1 3 8?) *7 [7]              | It's Not Unusual *1                     |
| (5 2 4 7 4?) [20]              | I don't know. Am I my brother's keeper? |
| (3! 4 2 2 4 3?) [13]           | Absolutely nothing!                     |
| (3 3 5 4?) [4]                 | Ghostbusters!                           |
| (4 2 4?) [6]                   | Baby don't hurt me.                     |

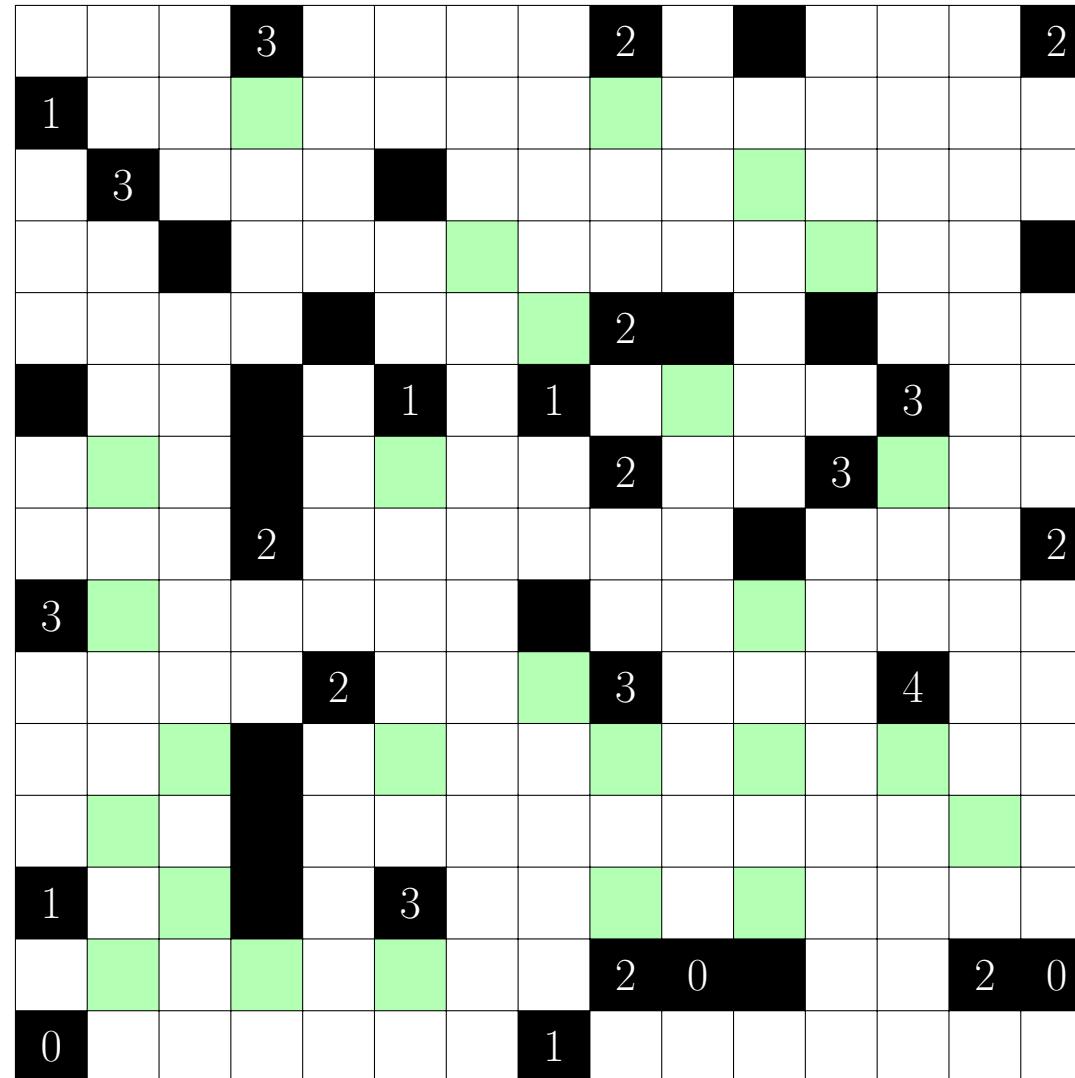
## Blind Man's Bluff

5 Points



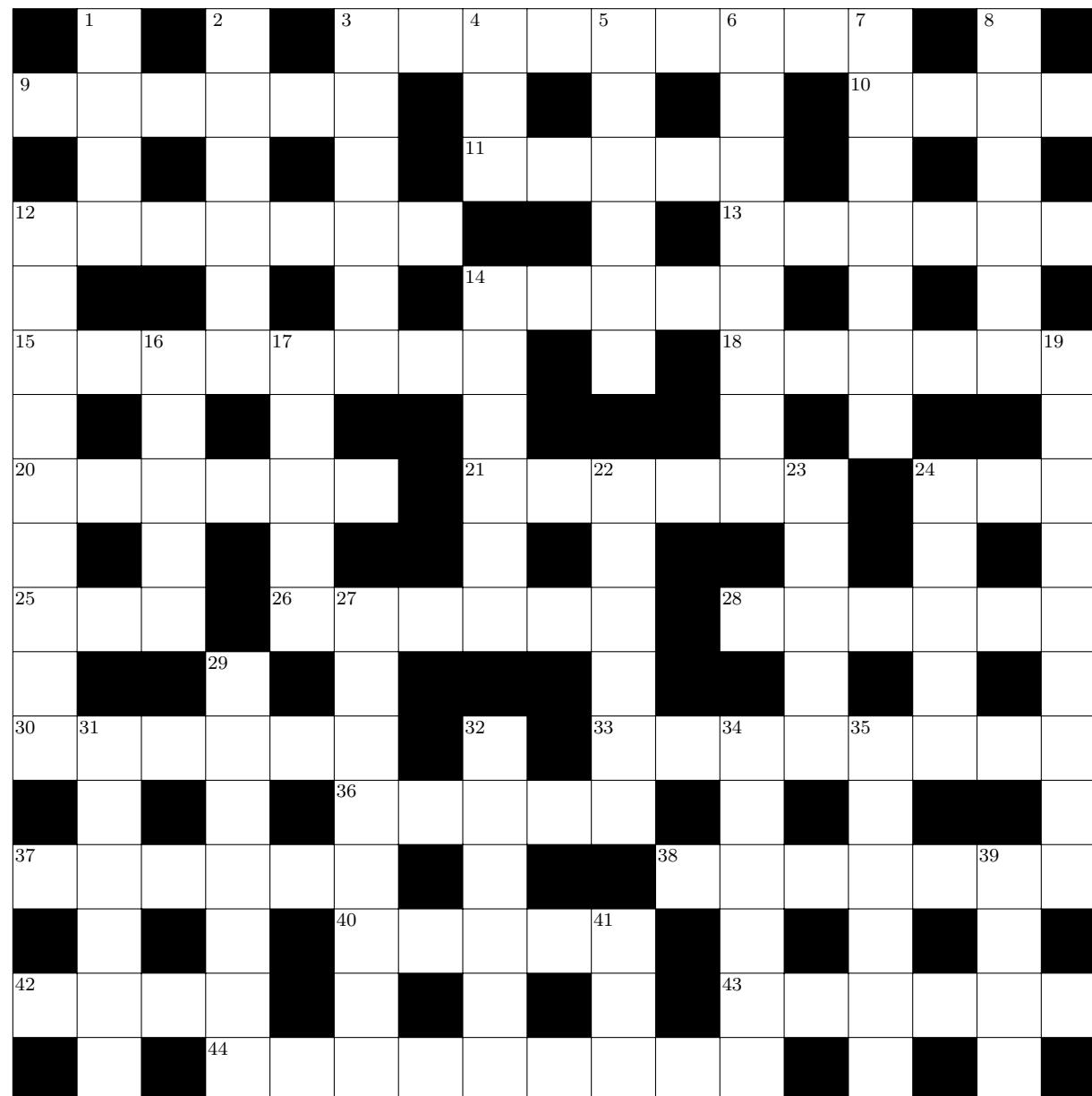


15 Points



# Cracking the Cryptic

15 Points



## Across

3. According to the computer, my French fruit (9)
9. Bravo! Bad cheer for the bottom (6)
10. Sound pigs make if they love what's in a pen (4)
11. Ugh, argon got scrambled (5)
12. Royalty at first doesn't understand board game (7)
13. Small Hugh Jackman movie tagline (6)
14. Fake iron in shirt (5)
15. A dirty fanfiction fail, crude tail (8)
18. Latex boot stroker (6)
20. Workspace isn't on the rocks (6)
21. Dim LED falls apart, revealing extraction hint word one (6)
24. Request found in Gamecube game (3)
25. Mixture of gases is even easier (3)
26. Great, no Hooters in the Super Bowl (6)
28. Convenient: following America, fuel disintegrates (6)
30. Old curse for sulfuric, hated breakdown (6)
33. Pulse measurer insane, exit Rome (8)
36. Mathematician Earl doesn't follow strange rule (5)
37. Prolific spitter and Labour leaders pass Obamacare (6)
38. Spread clay around edge of dress, transmutating (7)
40. Uninspired Virginia Pi Day (5)
42. Leave information technology, following old partner (4)
43. More desensitized count (6)
44. Round, solid pile becomes disorganized (9)

## Down

1. German woman, French gold (4)
2. Time Cohen messed up music (6)
3. Therapist sounds like bubbly oxygen (6)
4. Fish swimming upstream finds old cloth (3)
5. Sarcastic clothes press, I see (6)
6. "Listen, Mr., it's all wrong!" – the singer (8)
7. Gwen Stefani et al. leave, having received an 85% grade (2 5)
8. United Nations secure cabinet is actually quite dangerous (6)
12. Extraction hint word two appeared as loading messed up (9)
14. Food surrounded with fire on the outside! (6)
16. Consult with ump, looking up and down (5)
17. Terrific uses include houseplant (5)
19. Gru: really awful, often (9)
22. Initially dreadful bet goes awry, nothing right for insolvent (6)
23. Bad pose, Mike; it's salt (5)
24. Be suited for! (5)
27. Strangely, a pH value causes political strife (8)
29. Yoga greeting from tuna master (7)
31. Top-quality unit of illuminance owned by Strange-Gordon (6)
32. Students going north stumble (4 2)
34. "Is North Dakota south of Louisiana?" No, man (6)
35. Dig up former empiricist (6)
39. The Earth's inheritors: me and Elena Kagan, initially (4)
41. Osteopathic doctor has uniform, partners (3)

# CYBORG

10 Points

|      |      |      |      |      |      |
|------|------|------|------|------|------|
| ADDI | AGOB | ANGE | APLE | ARD* | BEAS |
| BITT | BOST | CANA | CATI | CES* | CHAR |
| CHIC | CYCL | DETR | DIEN | DIVI | E*** |
| E*** | EDWI | ELGI | ERHE | ESSO | HAWK |
| HT** | INDI | ION* | IPLI | KBON | KING |
| KNIG | L*** | LACK | LEAF | LETT | LETT |
| LEY* | MARV | MONT | MULT | MUST | N*** |
| NGS* | NTOM | OCK* | OITR | ON** | ONBR |
| OPS* | OSET | PARS | PAWN | PEAC | PLUM |
| PROF | QUEE | RACT | RB** | REAL | RL** |
| ROOK | RX** | S*** | S*** | S*** | SCAR |
| SHAN | SION | SUBT | T*** | TION | TORO |
| UCE* | UINS | WHIT |      |      |      |

**Desired Salary: \$21,025,001,005,015,010,000**

10 Points

Job Board

|                |           |
|----------------|-----------|
| MATHEMATICIAN  | \$194,000 |
| GROUNDKEEPER   | \$186,000 |
| VENTRILLOQUIST | \$167,000 |
| ENGINEER       | \$149,000 |
| PHYSICIST      | \$148,000 |
| PHYSICIAN      | \$141,000 |
| BIOLOGIST      | \$133,000 |
| JUSTICE        | \$132,000 |
| CHEMIST        | \$131,000 |
| ARCHITECT      | \$130,000 |
| ZOOLOGIST      | \$112,000 |
| DIRECTOR       | \$105,000 |
| WAITRESS       | \$102,000 |
| FOREMAN        | \$84,000  |
| JANITOR        | \$79,000  |
| ASTRONAUT      | \$76,000  |
| WAITER         | \$76,000  |
| PILOT          | \$75,000  |
| FARMER         | \$69,000  |
| CURATOR        | \$67,000  |
| ACROBAT        | \$64,000  |
| SAILOR         | \$64,000  |
| EXTRA          | \$62,000  |
| TAILOR         | \$60,000  |
| DOCTOR         | \$57,000  |
| BAKER          | \$54,000  |
| VALET          | \$52,000  |
| AUTHOR         | \$50,000  |
| QUANT          | \$45,000  |
| ACTOR          | \$44,000  |

## **Determine a Nine-Character Word That Parallels Each Clue**

10 Points

Quasimodo of Notre Dame, e.g.

Approximately 35 works by Plato, most of which describe conversations involving Socrates  
Presented without a reference or attribution

In an earnest and solemn manner

Textile embellishment involving porcupine spines

Large cargo ship

Nonessential amino acid (ionic form) represented by the letter D

In an unlucky or unfortunate manner

2008 Kardinal Offishall single featuring Akon

Letter bank: AAAAAAAABCCCDDEEEEEEEFGGGHHHHIIIIKKLLLLLNNN0000OPPQRRRRRSSSSSSSTTUUUUUUWYY

*Note:* Applying the proper extraction method to the title gives the sequence  $\{-1748, 1, -56, -2033, -178, 392, 521, 37, -237\}$ .

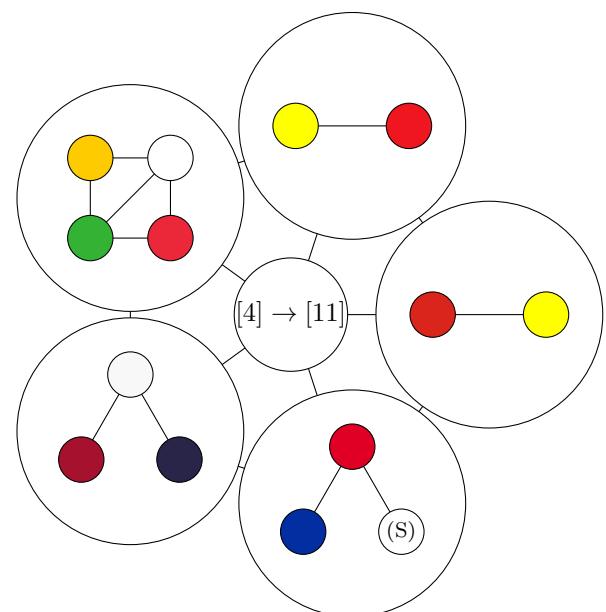
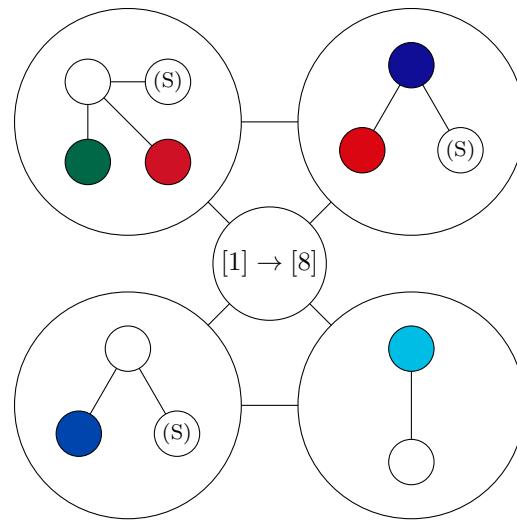
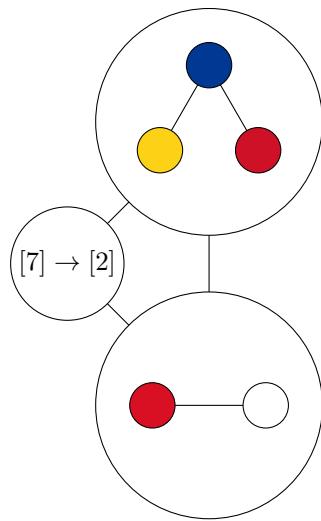
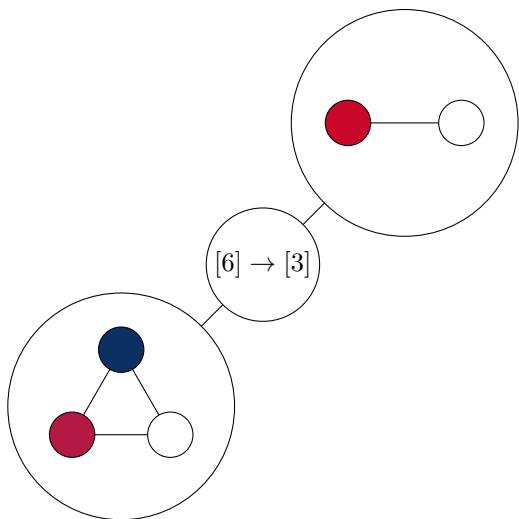
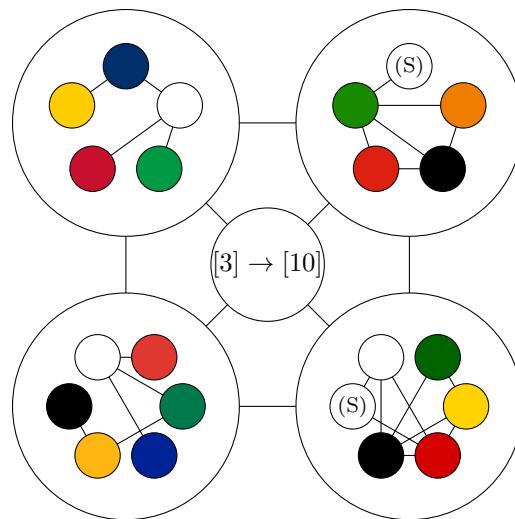
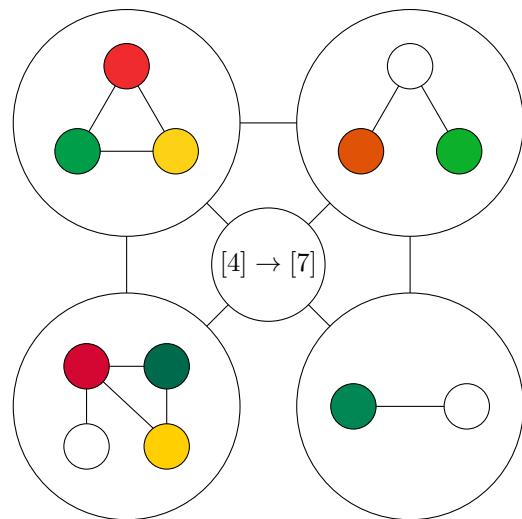
## **Double Down**

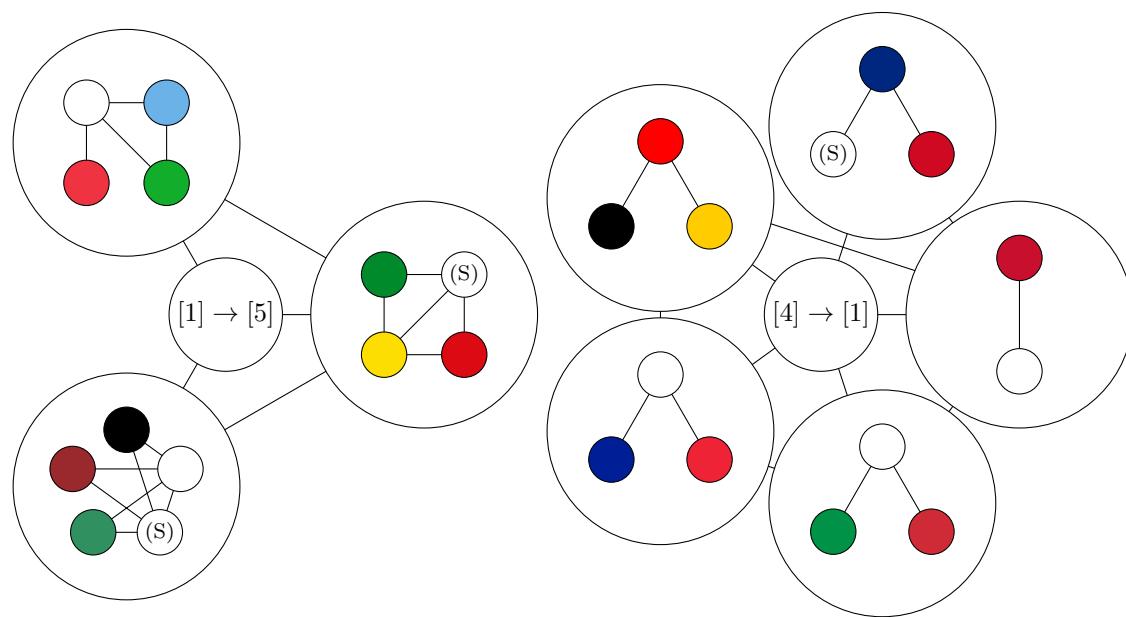
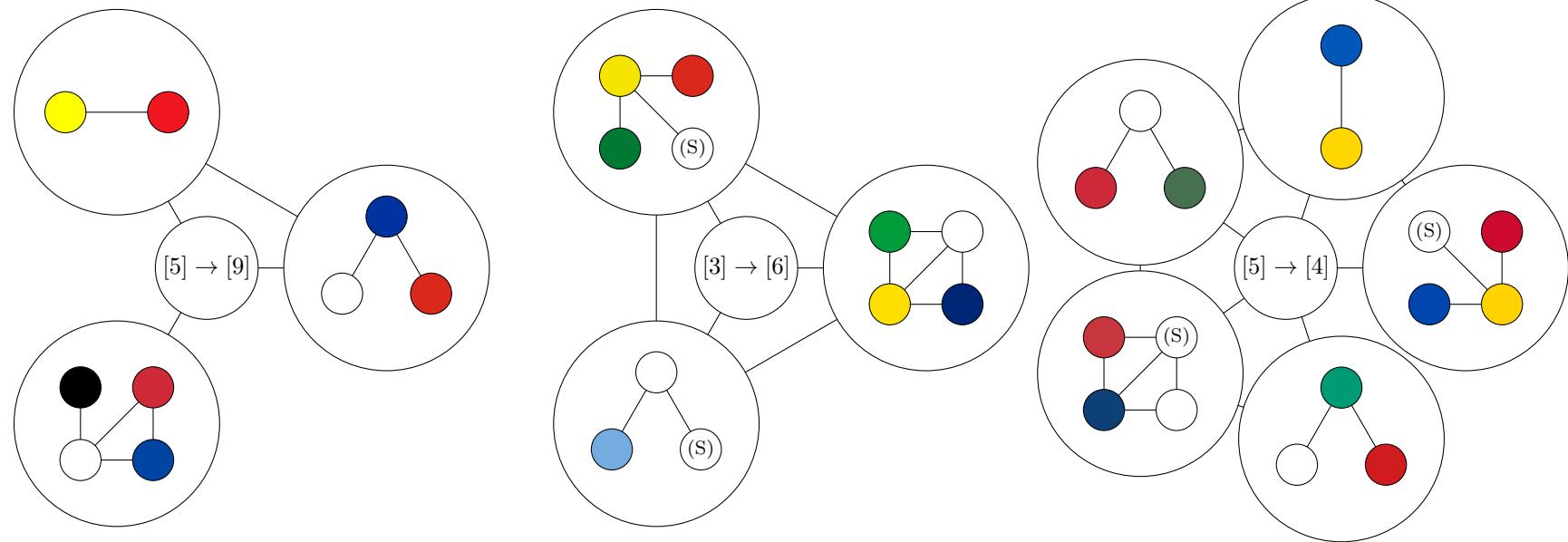
5 Points

- A plant that retains its leaves throughout the year
- Ask a question, as in an investigation
- Close to the actual value, but not entirely accurate
- Colorado River dam on the border between Nevada and Arizona
- Elizabeth II's Platinum one was celebrated in 2022
- It precedes "Fatale" in the name of a 2002 movie
- "Mirror image" of Superman often portrayed as his antagonist
- "Sign on the \_\_\_\_\_ line"
- "The Flintstones" or "Tom and Jerry", e.g.
- Tropical fish also known as a millionfish

## Flags of the World

15 Points



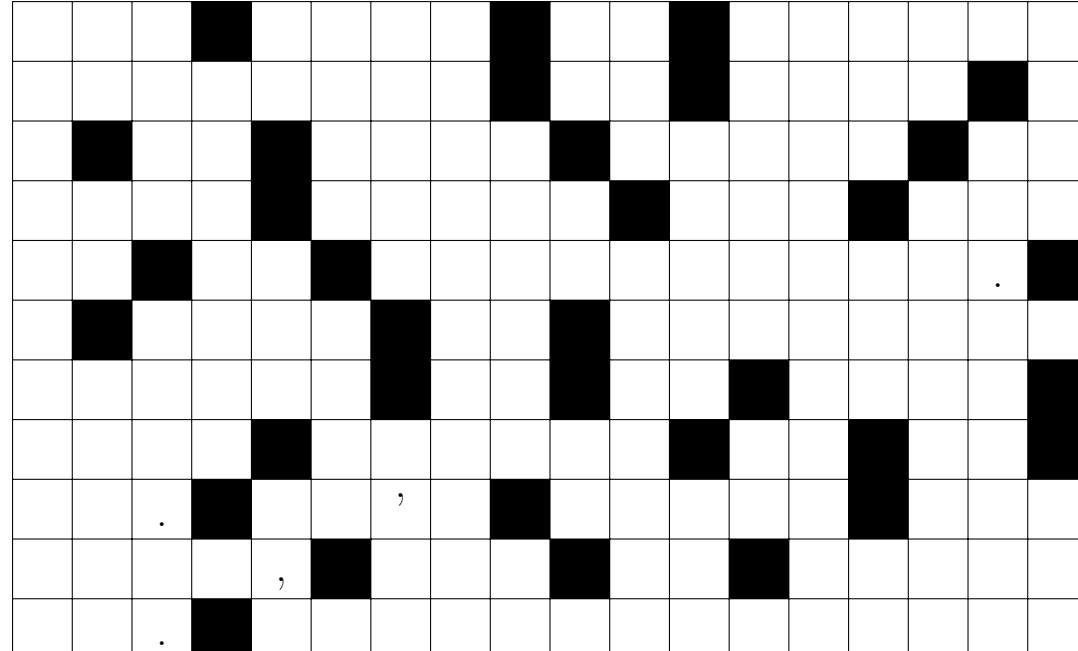


Note: (S) denotes a symbol.

# I'm Not Joking, and Don't Call Me Shirley

5 Points

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



# It Just So Happens...

15 Points

Captain Magma's catchphrase in "Spongebob Squarepants"

$$\underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \bigcirc \underline{\hspace{1cm}} \underline{\hspace{1cm}} \quad a + 5b - 2z$$

A non-American needs one before employment in the US [2 wds]

$$\bigcirc \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \quad 5a - 9b + 4z$$

She plays Elvira in "Scarface"

$$\underline{\hspace{1cm}} \underline{\hspace{1cm}} \bigcirc \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \quad 2a + 7b - 5z$$

(3R,4S)-1,3,4,5-Tetrahydroxypentan-2-one

$$\underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \bigcirc \underline{\hspace{1cm}} \underline{\hspace{1cm}} \quad 2a - 4b - 5z$$

Dull, marked by a covering of gray clouds

$$\underline{\hspace{1cm}} \bigcirc \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \quad 3a + 5b - 7z$$

Non \_\_\_\_\_ (irrelevant statement)

$$\underline{\hspace{1cm}} \bigcirc \underline{\hspace{1cm}} \underline{\hspace{1cm}} \quad 7a - 6b - 3z$$

Speculate

$$\bigcirc \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \quad 4a + b - 6z$$

Manufacturer of Sabre, Starfighter, and Tutor for RCAF

$$\underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \bigcirc \quad 4a - b + 3z$$

Nim with no piles, for example [2 wds]

$$\underline{\hspace{1cm}} \underline{\hspace{1cm}} \bigcirc \underline{\hspace{1cm}} \underline{\hspace{1cm}} \quad 4a - 4b + z$$

Member of a particular New York hockey team

$$\underline{\hspace{1cm}} \underline{\hspace{1cm}} \bigcirc \underline{\hspace{1cm}} \underline{\hspace{1cm}} \quad 3a + 3b - 8z$$

Pachyderm

$$\underline{\hspace{1cm}} \bigcirc \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \quad 3a - 8b + 8z$$

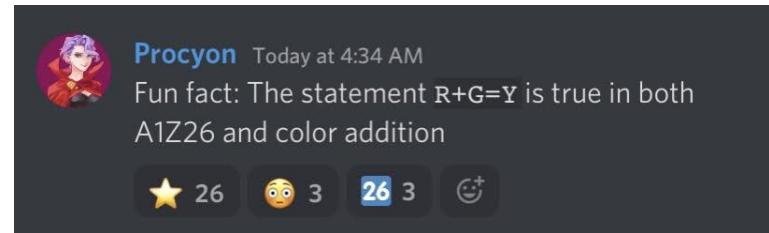
\_\_\_\_\_ Polyania, host of several 2014 Olympic events

$$\underline{\hspace{1cm}} \underline{\hspace{1cm}} \bigcirc \underline{\hspace{1cm}} \underline{\hspace{1cm}} \quad 2a - 3b + 6z$$

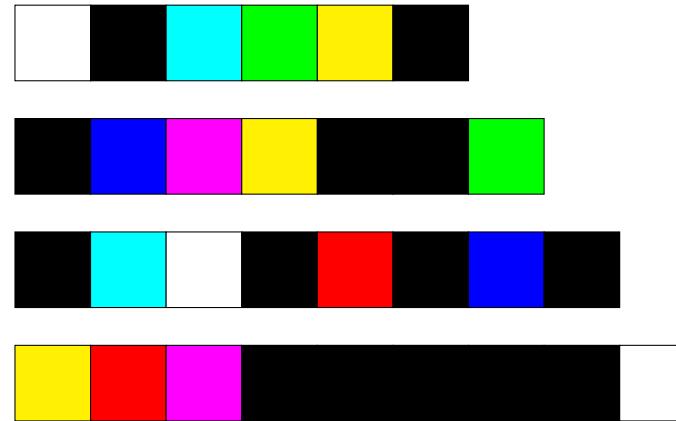
$z = \begin{array}{|c|c|}\hline & \\ \hline & \\ \hline \end{array}$   
 $(1 - 12)$

# Look Ma, I Made #Starboard!

10 Points

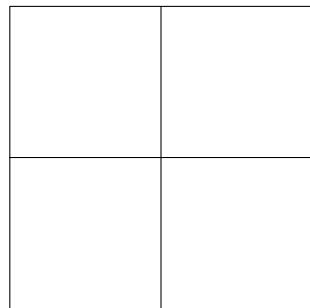


- Disinclined and unwilling to do something
- Fictional home town of the Flintstones
- Home world of the Time Lords in “Doctor Who”
- Like leather whose grade is authentic?
- Literary character who stares at a green light
- Munroe who publishes the webcomic “XKCD”
- Sebastian Michaelis, to Ciel Phantomhive
- Second element discovered by the Curies
- Submarine pitcher highlighted in “Moneyball”
- Substances used in chemical analyses
- The 20<sup>th</sup> President, or a lasagna lover
- Walter Isaacson wrote one of Steve Jobs



## Microscopic Masyu

10 Points



Solve with Penpa

# New Neighbors

15 Points

Welcome to Maoville, the world's first city build entirely on the Cartesian plane! You and the other seven residents all live at distinct lattice points in or on the square with opposite corners at  $(1, 1)$  and  $(5, 5)$ . On your first day in your black house at  $(3, 1)$ , you observe your neighbors going on walks between their differently-colored houses at different times of day and write down your notes.

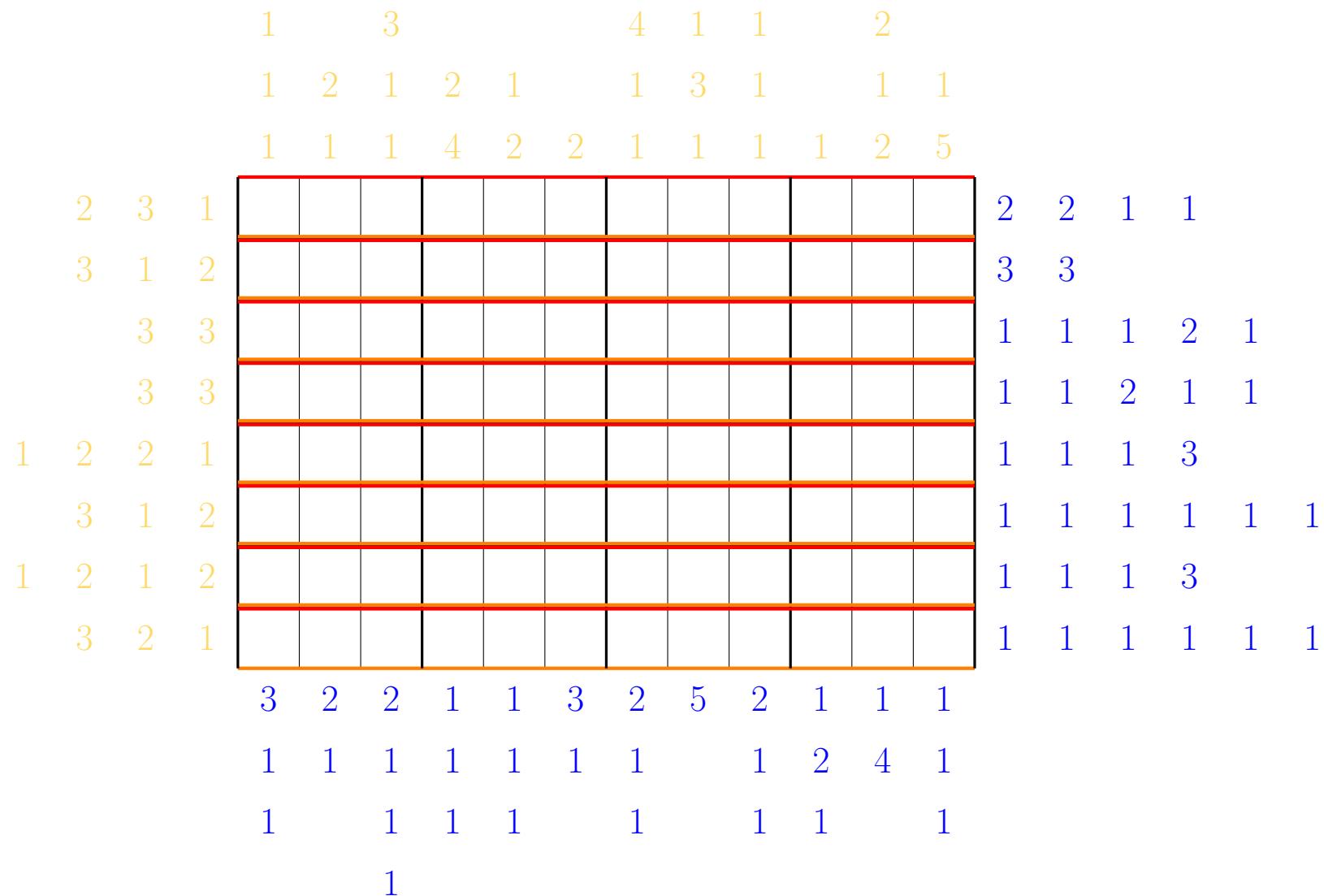
- Five of the new neighbors are Alice, George, the owners of the houses at  $(3, 5)$  and  $(5, 5)$ , and the neighbor who went for a walk at 3:00 PM.
- Of the orange house and the house whose owner went for a walk at 3:00 PM, one is located at  $(5, 1)$  and the other is owned by Erin.
- Of the house whose owner went for a walk at 9:00 AM and the house at  $(2, 3)$ , one is red and the other is owned by George.
- Bob went for a walk 1 hour after the owner of the house at  $(5, 5)$ , but some time before the owner of the red house.
- Alice went for a walk 5 hours after the owner of the green house.
- The owner of the pink house went for a walk 3 hours after the owner of the purple house.
- The owner of the yellow house went for a walk 3 hours after Carol.
- The owner of the red house went for a walk 1 hour before the owner of the blue house.
- Alice does not live at  $(4, 3)$ , whose owner didn't go for a walk at 9:00 AM.
- Frank did not go for a walk at 1:00 PM.
- The owner of the house at  $(3, 5)$  didn't go for a walk at 11:00 AM.
- The house at  $(1, 5)$  isn't pink.

Each of the following sequences of events started at a distinct time between 9:00 AM and 3:00 PM inclusive, on the hour.

- Alice visited the yellow house, your house, the blue house, Erin's house, Dave's house, Dave's house, and the green house.
- Bob visited the blue house, Alice's house, the red house, Carol's house, the house at  $(2, 3)$ , the purple house, and Frank's house.
- Carol visited the house at  $(1, 5)$ , George's house, your house, the house at  $(4, 3)$ , the purple house, the orange house, and Bob's house.
- Dave visited the house at  $(2, 3)$ , the house at  $(1, 1)$ , the pink house, the house at  $(3, 5)$ , the yellow house, Bob's house and the red house.
- Erin visited Dave's house, the green house, the house at  $(5, 5)$ , the yellow house, Alice's house, the pink house, and George's house.
- Frank visited the house at  $(1, 1)$ , Alice's house, George's house, the house at  $(1, 5)$ , the pink house, your house, and the yellow house.
- George visited the house at  $(1, 1)$ , the pink house, the green house, the house at  $(5, 1)$ , the house at  $(1, 5)$ , Frank's house, and the orange house.

## Nonogramming the Last Layer

15 Points



## Not Just Vocalic... Supervocalic!

5 Points

- (7 7) [1] THRFTHNNGRGMSCCTHNGFRNDMCKNGJY (6 2 “3 6 5”, “8 4”, 3 “10”)  
(5 7) [10] BSBLLPLYRWHTTGHGRNDSLMSNGLNTHNNTNNNTYNNNLCS (8 6 3 3 3 “5 4 6” 2 3 8 6-4 4)  
(5 7) [8] WNNRGFLDNLBFRBSTCTRSSFRHRRLNPRRTYWMMN (6 2 1 6 5 3 4 7 3 3 4 2 “6 5”)  
(6 6) [12] TWNTYYRBSKTBLPLYRFRTHMMHTWRNGNMBFRFTY (6-4 10 6 3 3 5 4 7 6 5)  
(6 6) [5] FCTNLNTRNTNLMNFMYSTRYPLYDBYMKMYRS (9 13 3 2 7 6 2 4 5)  
(6 7) [4] HLLFFMNWJRSYDVLSGLWHRNCLLYHSTHRCRRGLS (4 2 4 3 6 6 6 3 10 3 5 6 5)  
(4 7) [8] CTRWHPLYDGNTSMTHNTHMTRXNDHTTLRVNVFRVNDTT (5 3 6 5 5 2 “3 6” 3 3 7 1 2 “1 3 8”)  
(4 7) [6] MRCNTLVSNPRSNLTWYWHSTDTHSSVTSPCBRDGSRSRNGTHCLDWR (8 10 11 3 6 3 2-6 5 6 6 6 3 4 3)  
(4 7) [3] FLKSNGRWHTLDSTRYBTDDGNGTHDRFTNLCSRSTRNTMSSCR (4 6 3 4 1 5 5 7 3 5 2 “5’1 10 9”)  
(5 5) [4] FRSTWMNTCLMBTHHGHSTMNTNNLLSVNCNTNNTS (5 5 2 5 3 7 8 2 3 5 10)  
(4 6) [9] HNGRNCTRWHPLYDCNTDRCLNBRDWYDPTTN (9 5 3 6 5 7 2 1 8 10)  
(6 6) [7] MTPCKRTHGHTHVNSPRDTHCHRCTRNCLSMNPRPGNDPSTRS (4 6 7 2 4 8 3 9 5 3 2 10 7)  
(5 10) [2] CTRWHPLYDTHTTLRBGLBWSKNNDTHMYRNBLZNGSDDLS (5 3 6 3 7 3 8 3 3 5 2 “7 7”)  
(4 8) [1] NVRSTYFMMGRDTWHWNLLDVNGOLDMDLSTCNSTVLYMPCS (10 2 5 8 3 3 3 6 4 6 2 11 8)  
(8 4) [5] QKRBLTNSTWHCWRTTHDCLRTNFNSNTMNTSTTHSNCFLSCNVNTN (6 12 3 2-5 3 11 2 10 2 3 6 5 10)  
(5 8) [12] FLGLHRNSTWHFNDNTRNTNLSCCSSWTHHSSNGLFLSSGD (13 3 5 13 7 4 3 6 “5 2 4”)

## Page Turners

5 Points

This protagonist turns into a cockroach, and has to deal with the consequences.

This protagonist falls down a literal rabbit hole and immediately encounters a drinking problem.

This protagonist works as a magical nanny and carries an umbrella.

This protagonist travels forwards and backwards in time to see the consequences of his miserliness.

This protagonist breaks an unlucky streak by catching a large marlin that is eventually eaten by sharks.

This protagonist (son of the titular character) has all his Mafia family's enemies murdered for revenge.

This protagonist dislikes the red color of her hair and demands her name be spelled with a trailing 'e'.

This protagonist takes on his mother's personality and harms several people (but not a fly, allegedly).

This protagonist repeatedly offers a man the titular food in a variety of locations.

This protagonist is sentenced to lifetime public humiliation for the crime of adultery.

This protagonist moves between multiple low-wage jobs, verbally abuses his mother, and yells at movies.

This protagonist (an investment banker) critiques 1980s pop music and maybe murders a lot of people.

*Authors: Robert Bloch, Lewis Carroll, Charles Dickens, Bret Easton Ellis, Nathaniel Hawthorne, Ernest Hemingway, Franz Kafka, Lucy Maud Montgomery, Mario Puzo, Dr. Seuss, John Kennedy Toole, P.L. Travers*

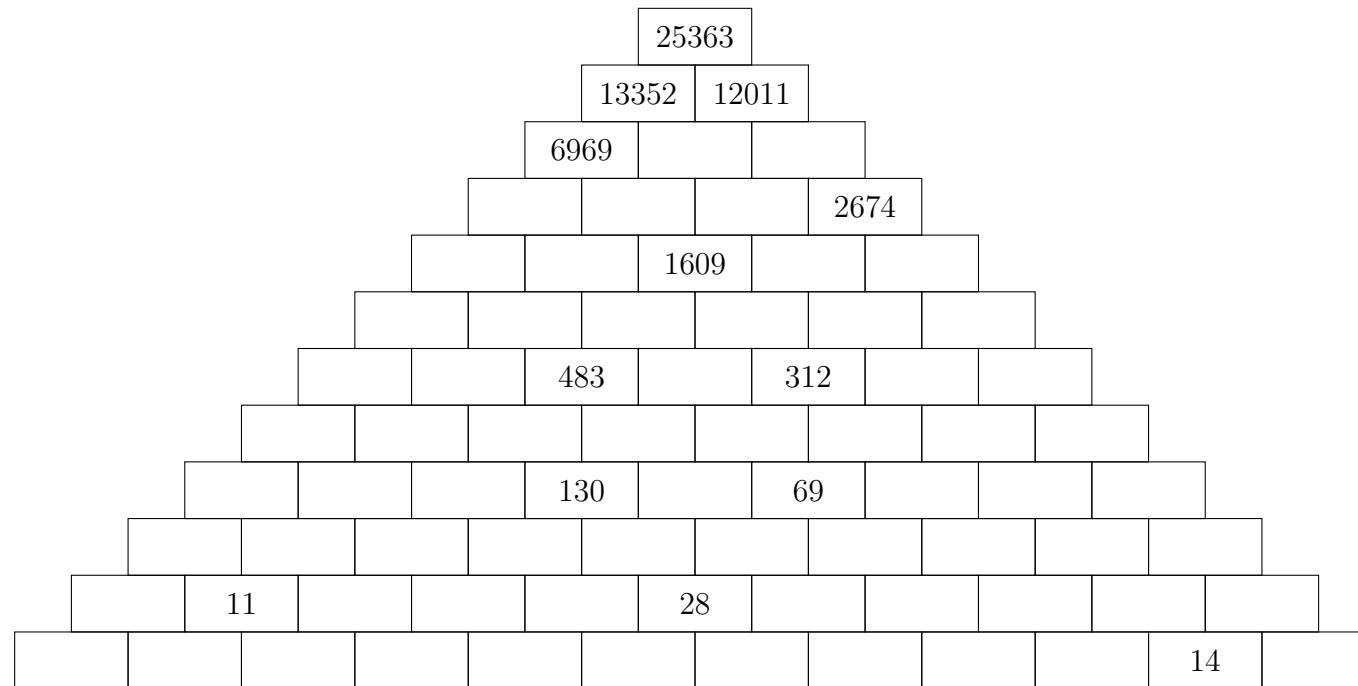
## Prime Directive

5 Points

|              |              |              |              |              |              |              |              |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| $45 \div 9$  | $3 + 5$      | $13 - 4$     | $8 \div 2$   | $1 + 7$      | $6 \times 2$ | $9 - 3$      | $3 \times 7$ |
| $3 + 4$      | $12 - 3$     | $6 + 6$      | $5 \times 8$ | $1 + 6$      | $14 \div 2$  | $2 + 3$      | $1 \times 1$ |
| $5 + 6$      | $6 - 4$      | $7 \div 1$   | $4 \times 7$ | $3 - 1$      | $2 \times 8$ | $13 - 6$     | $5 + 4$      |
| $3 + 1$      | $6 \times 9$ | $5 \times 4$ | $9 - 5$      | $5 + 6$      | $4 \div 2$   | $9 \div 3$   | $7 - 1$      |
| $8 - 3$      | $9 \times 9$ | $5 \times 1$ | $6 + 3$      | $14 - 6$     | $12 - 8$     | $7 \times 2$ | $10 - 2$     |
| $4 + 7$      | $3 + 7$      | $63 \div 9$  | $6 + 9$      | $64 \div 8$  | $9 - 4$      | $2 + 1$      | $25 \div 5$  |
| $42 \div 7$  | $15 \div 3$  | $7 \times 3$ | $4 + 5$      | $11 - 5$     | $56 \div 8$  | $6 + 1$      | $12 \div 3$  |
| $3 \times 2$ | $9 + 7$      | $18 \div 3$  | $27 \div 3$  | $7 \times 7$ | $40 \div 8$  | $9 - 7$      | $3 + 2$      |

## Pyramid Scheme

5 Points



## Quiz Bowl

10 Points

NMLAIA HTTA HYISSAMN ADLN OMFRE OTMS LSLCOEY EEBERSMLS  
XRAIR HOBI NESPONSIBLI BOV DIGHEV YOGNITIVI BUNCTIONW WNH IOVEMENX  
EGDIRB TAHT STCENNOC TIORTED NAGIHCIM HTIW ROSDNIW OIRATNO  
OSERCOMP FO EHT IGHTLMOON ATASON OHW ERTLA TEOWR KSRWO LEIWH AFDE  
FERINGDIF TEINSPRO ODEDENC MFRO THE ESAM EGEN VIA ERNATIVEALT ICINGSPL  
ORIA LECTR INGL HA HARE T AM IT ANGNA TYL OOLLOW-U  
VOMING ARCFT YAM DNIICATE IHTS GISNAL TIWH ROMSE DOCE SOS  
HROMN POFFCER ATHA WSURRISINGLY FONL TCOMMANDER OEIGTY KSOLIERS  
IWT XCITCHXIN DU IWXH TKTCI XH BTPHJGTS QN IWT GXRWITG HRPAT

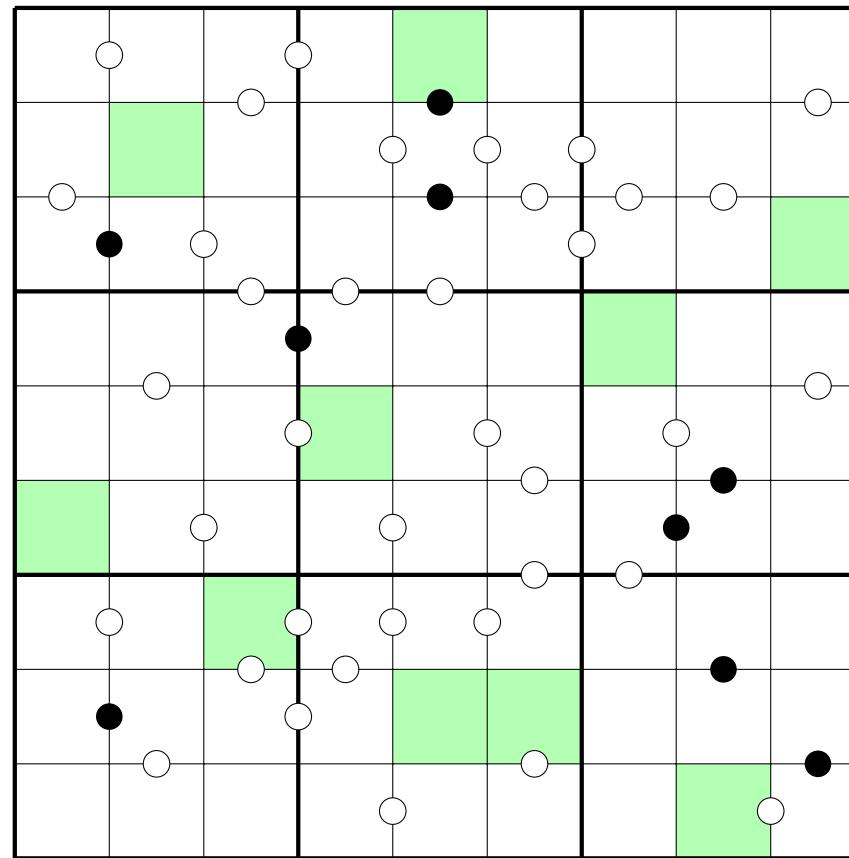
## Seven Circles of Hell

15 Points

|                    |                     |                     |                     |                     |
|--------------------|---------------------|---------------------|---------------------|---------------------|
| (-14.4848, 9.8409) | (-12.3360, -5.7446) | (-10.7565, 17.1114) | (-10.5938, 8.9043)  | (-10.1992, 16.3102) |
| (-9.6159, 3.4027)  | (-9.5973, 24.6159)  | (-7.1701, 2.2302)   | (-6.5600, 2.6808)   | (-6.1127, 23.1613)  |
| (-5.5269, 22.0697) | (-2.7698, 30.1701)  | (-1.8866, 1.4243)   | (-0.6718, -16.3026) | (0.3615, 0.0170)    |
| (0.5773, 6.5220)   | (0.9804, 10.5290)   | (1.6385, 23.9830)   | (3.4443, -6.4939)   | (5.3724, -10.8275)  |
| (5.8886, -5.7565)  | (7.5269, 1.9303)    | (8.5600, 21.3192)   | (8.8629, 27.9838)   | (9.8863, 13.9642)   |
| (11.5973, 3.3841)  | (11.6159, 24.5973)  | (12.1114, 33.7565)  | (12.1992, 7.6898)   | (12.5938, 15.0957)  |
| (12.9587, -7.2630) | (13.2048, 19.3495)  | (15.0501, -16.8928) | (15.0798, 7.1103)   | (17.6334, 12.4045)  |
| (18.1248, 9.1432)  | (19.3257, 3.0457)   | (19.4921, -0.3038)  | (20.7698, -2.1701)  | (22.7952, -15.3495) |
| (23.4347, 22.0520) | (23.4576, 11.6118)  | (24.5035, 5.8278)   | (25.1701, 25.7698)  | (27.4731, -7.2392)  |
| (28.7565, 10.8886) | (30.6276, 14.8275)  | (30.7845, 8.1413)   | (35.4227, -2.5220)  |                     |

# Solving a Sudoku With No Given Digits???

10 Points



*Kropki dots*

- “Adjacent” refers to orthogonal adjacency.
- If the absolute difference in value between two adjacent cells is 1, then a white dot is placed between those cells.
- If one cell is twice the value of an adjacent cell, then a black dot is placed between those cells.
- If a 1 is adjacent to a 2 (fulfilling both of the above conditions), then a white dot is placed between those cells.
- All possible dots have been placed in the grid.

## **SPARE Parts**

5 Points

Get ready (for)

Denoting substitution at diametrically opposite carbon atoms in a benzene ring

To make a mistake

Eminem, e.g.

In Magic, a card that's even more uncommon than uncommon

An already-existing multinational alliance, plus Iceland, Liechtenstein, and Norway

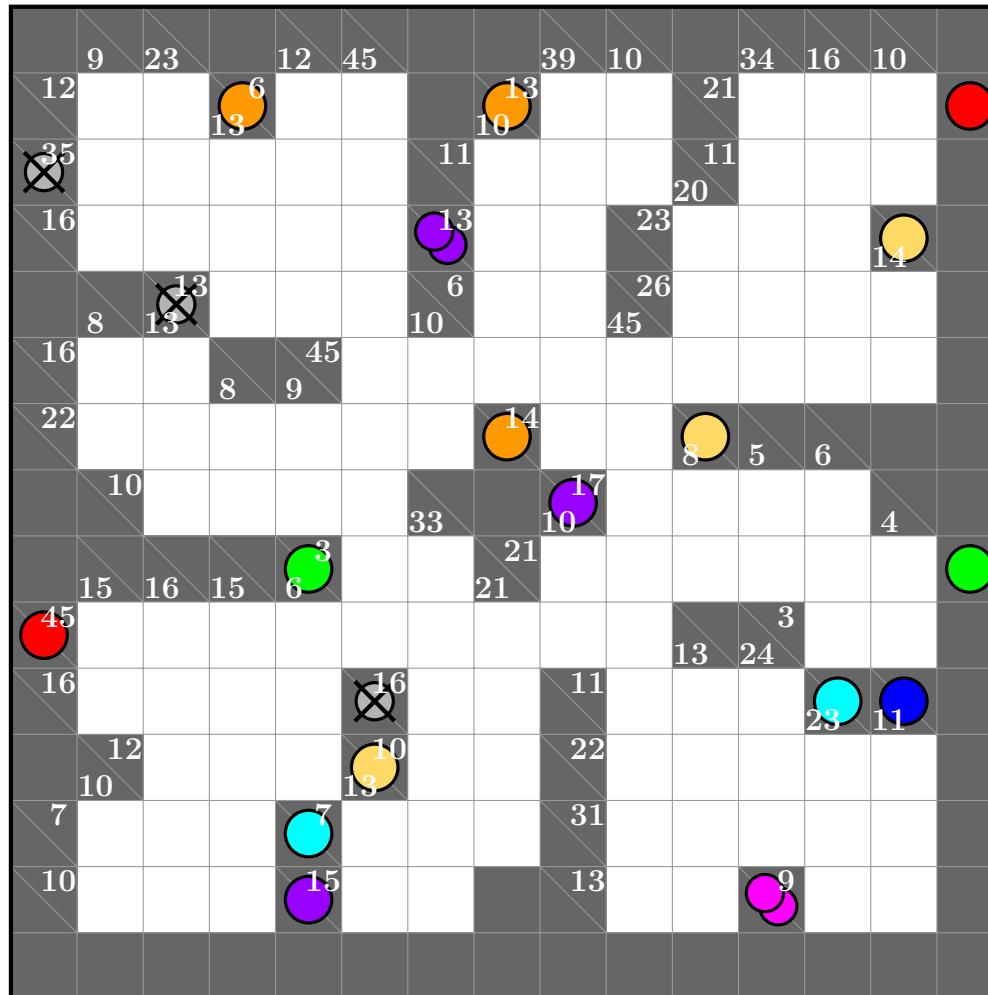
Agency that developed technical foundation of the Internet

Home of Circe

One who can perceive the future

## Subjective Ranking

10 Points



*Akari-Tents hybrid with diagonals:* After solving the Kakuro, place lamps in some white squares in such a way that every white square is illuminated and no lamp directly shines at another. Lamps shine in all horizontal, vertical and diagonal directions, even diagonally across corners of black squares, but not diagonally between two black squares (nor right through black squares). There is exactly one lamp plugged into each outlet (circle), but not all outlets are marked. Lamps must be orthogonally adjacent to their corresponding outlet, but may not be orthogonally adjacent to two different outlets. Several squares not adjacent to any lamps are marked.

# The 2023 FAMAT State Convention Open Interschool Individual Test

15 Points

- 1) Which of the following is a multiple of 12?  
A) 20      B) 60      C) 96      D) 168      E) 306
- 2) Which of the following is prime?  
A) 9      B) 17      C) 29      D) 43      E) 71
- 3) Which of the following is a perfect square?  
A) 9      B) 27      C) 64      D) 81      E) 121
- 4) Which of the following has exactly 8 positive integer factors?  
A) 20      B) 28      C) 42      D) 58      E) 64
- 5) Which of the following is the measure of an angle (in degrees) with a positive cosine?  
A) 132      B) 345      C) 420      D) 666      E) 1013
- 6) Which of the following can be a leg of a right triangle with hypotenuse 41 and integer perimeter?  
A) 5      B) 9      C) 19      D) 28      E) 34
- 7) Which of the following is a value of  $n$  such that the triangle with side lengths  $n - 1$ ,  $n$ , and  $n + 1$  has integer area?  
A) 34      B) 114      C) 724      D) 2764      E) 10084
- 8) The exterior angles of a regular polygon with which of the following numbers of sides have integer measures in degrees?  
A) 10      B) 15      C) 16      D) 28      E) 48
- 9) Which of the following can be written as the sum of five consecutive integers?  
A) 8      B) 23      C) 37      D) 52      E) 75
- 10) Which of the following can be written as the sum of two consecutive primes?  
A) 32      B) 54      C) 78      D) 98      E) 134
- 11) Which of the following cannot be written as the sum of three integer squares?  
A) 48      B) 73      C) 92      D) 107      E) 127
- 12) Which of the following can be written as the sum of consecutive integers starting with 1?  
A) 20      B) 42      C) 56      D) 78      E) 210
- 13) Which of the following is a leap year?  
A) 600      B) 1068      C) 1500      D) 1800      E) 2000
- 14) Which of the following is a decimal palindrome?  
A) 120      B) 161      C) 252      D) 284      E) 313
- 15) Which of the following contains an even number of 1's in its binary representation?  
A) 22      B) 31      C) 52      D) 69      E) 77
- 16) Which of the following is the atomic number of a chemical element that starts with 'A'?  
A) 2      B) 18      C) 33      D) 47      E) 55

# The Connecting Wall of Sequences

10 Points

|                                     |                                                       |                                                        |                                                |
|-------------------------------------|-------------------------------------------------------|--------------------------------------------------------|------------------------------------------------|
| Augustus<br>?<br>Veruca<br>Mike     | Aurora<br>Ariel<br>Belle<br>?                         | Burned<br>?<br>Paralyzed<br>Poisoned                   | Emmy<br>Grammy<br>?<br>Tony                    |
| Good<br>Excellent<br>Near Mint<br>? | ?                                                     | Infrared<br>Visible<br>Ultraviolet<br>?                | Montgomery<br>Montpelier<br>?<br>Oklahoma City |
| ?<br>Right<br>Down<br>Left          | September<br>October<br>?<br>December                 | Speak to Me<br>Breathe (in the Air)<br>On the Run<br>? | Squad<br>?<br>Company<br>Battalion             |
| Stone<br>Iron<br>?<br>Netherite     | The \$128,000 Question<br>Pitfall<br>Battlestars<br>? | The Yardbirds<br>The Bluesbreakers<br>?<br>Blind Faith | Tybalt<br>Paris<br>Romeo<br>?                  |

Note: Each question mark links to an answer checker that can confirm your answer for that particular sequence.

|         |         |         |         |
|---------|---------|---------|---------|
| (4) [1] | (6) [2] | (7) [3] | (5) [1] |
| (8) [3] | (7) [4] | (4) [3] | (2) [1] |
| (8) [1] | (6) [4] | (5) [3] | (4) [3] |
| (7) [4] | (9) [6] | (5) [2] | (6) [6] |

# They're Always Up to Something

10 Points

Beat with a stick as punishment  
Hurried towards a place of security  
Rations for domestic animals  
Run away from a dangerous situation  
Sheet of floating ice  
[ Avenger ]

Container tops  
Disease associated with HIV  
Energy-efficient semiconductor light sources  
Expresses (a grievance) publicly  
Not more  
[ Attack ]

A roller coaster or merry-go-round, e.g.  
An actor's part in a movie  
One of several pointy bits of a fork  
Periodic rise and fall of the ocean  
Traveled, as on horseback  
[ Boss ]

A floppy one can store data  
Eating utensil that contains several tines  
A nerd's or geek's cousin?  
Long-bladed thrusting dagger  
The game of strategic conquest  
[ Cross ]

A party of this type is chanted about in  
“Animal House”  
Discord shortcode for party popper emoji  
Dravidian ethnic group that lives in the  
Nilgiri Mountains  
Fancy marbles used as shooters  
Immature frogs [slang]  
[ Encourage ]

First female president of USC  
Increments of 12 inches  
Material on a poker table  
One of 19-24 strips of metal on a modern  
guitar's neck  
Times New Roman, e.g.  
[ Film ]

2021 science fiction film based on a Frank  
Herbert novel  
Cooked thoroughly  
Discarded objects considered of little value  
Michael Jordan could perform this from the  
free throw line  
No longer present  
[ Gov't agency ]

A flowering plant's unit of reproduction  
A person who can perceive the future  
through supernatural insight  
An action that can be done to an email  
Fictional skeleton with famous, easily  
recognizable boss battle music  
It's coarse, rough, irritating, and gets  
everywhere  
[ Plant ]

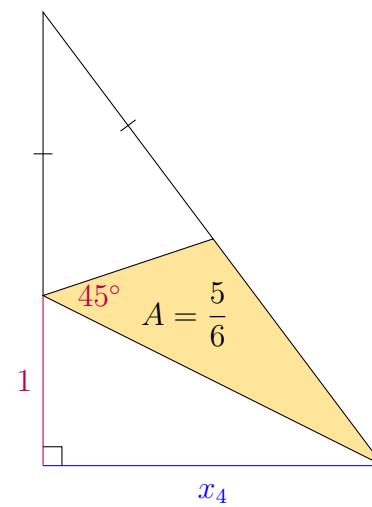
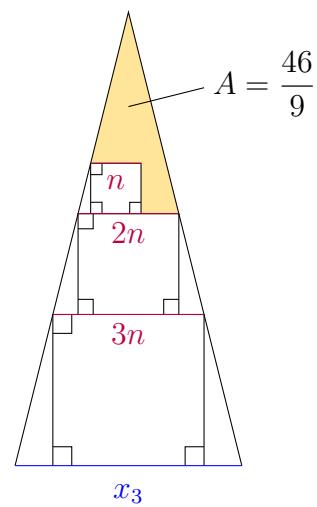
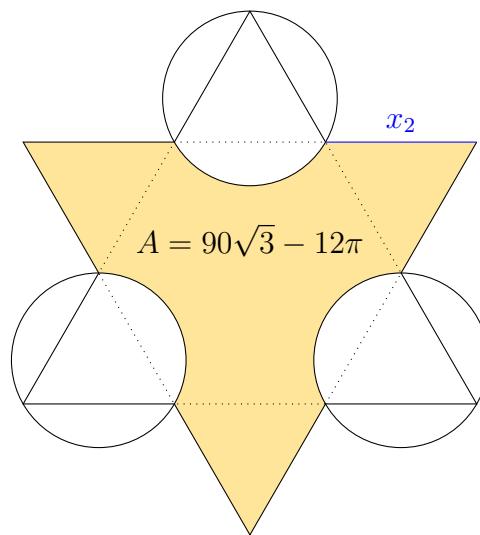
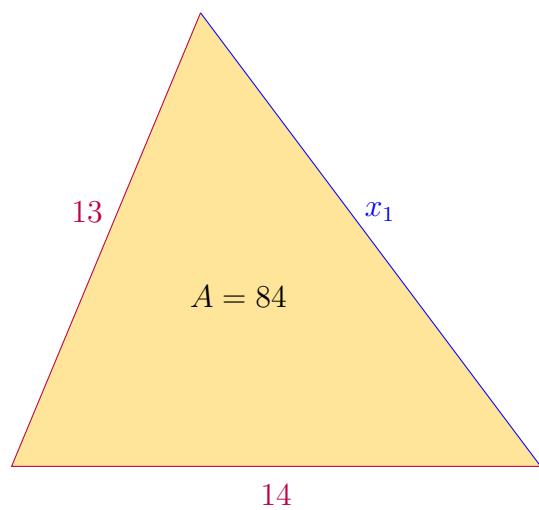
A discovery of something valuable, often of  
archaeological interest  
Combustion or burning of a material, giving  
off light, heat, and smoke  
Genre of music performed by James Brown  
and Earth, Wind & Fire  
Sum of money saved up for a particular  
purpose  
Very thin, like hair or the teeth of a comb  
[ Senator ]

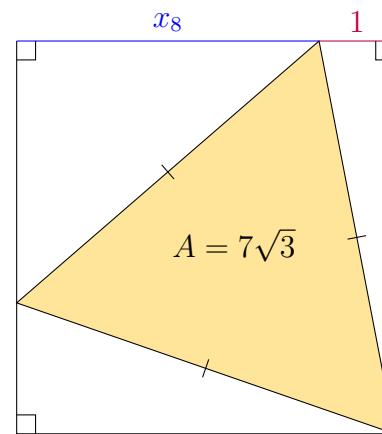
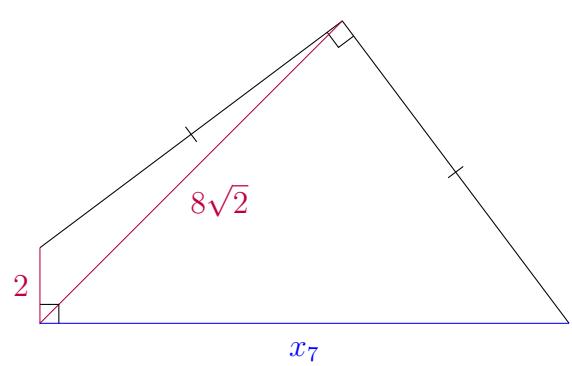
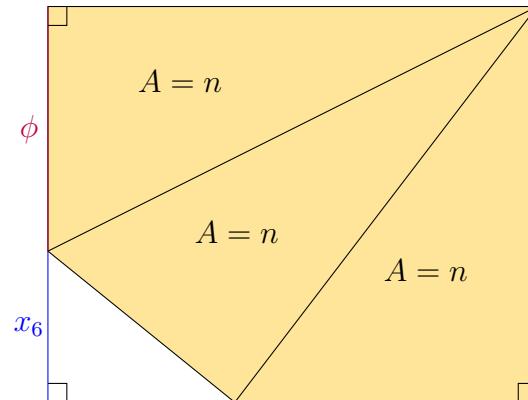
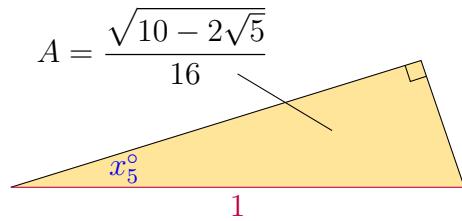
A broad smile  
A person who has recently completed college,  
e.g.  
Lines can be drawn on the Cartesian plane  
to create one of these  
Medically, toward the mouth  
Spoken rather than written  
[ Weight ]

(5, 3)

# Triangles and Tribulations

10 Points





*Additional details*

- In the diagram for  $x_2$ , the hexagon given by the dotted lines is regular.
- In the diagram for  $x_3$ , the three stacked rectangles are squares.
- Diagrams are not necessarily drawn to scale.

# Video Killed the Radio Star

5 Points

(4 2 7) [10]



(6) [4]



(6 2 6) [8]



(4 2 4 5) [13]



(4 4 3.) [9]



(4 4 2) [9]



(4 2 2) [5]



(5 5) [9]



(8 4) [3]



(1 5 4 3 9) [11]



## Wool, Isn't This Nice? And Isn't It Iron Pick?

5 Points

|                   |                     |                    |                  |                   |
|-------------------|---------------------|--------------------|------------------|-------------------|
| Activator Rail x6 | Axe                 | Blast Furnace      | Block of Iron x2 | Boots             |
| Bucket            | Cauldron            | Chain x9           | Chestplate       | Compass x2        |
| Detector Rail x6  | Door x6             | Flint and Steel x2 | Helmet           | Hoe               |
| Hopper x3         | H.W. Pressure Plate | Iron Bars x48      | Iron Ingot       | Iron Nugget x63   |
| Iron Trapdoor x2  | Leggings            | Minecart x3        | Pickaxe          | Piston x9         |
| Rail x16          | Rail x16            | Shears             | Shield           | Shovel            |
| Smithing Table    | Sticky Piston x4    | Stonecutter        | Sword            | Tripwire Hook x16 |

## Word Search “4” the People

15 Points

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 7 | 1 | 5 | 3 | 2 | 2 | 4 | 7 | 9 | 8 | 3 | 8 | 1 | 8 | 9 |
| 2 | 5 | 5 | 4 | 5 | 2 | 8 | 6 | 3 | 2 | 3 | 7 | 1 | 0 | 5 | 7 |
| 5 | 9 | 0 | 4 | 6 | 6 | 6 | 1 | 6 | 0 | 4 | 3 | 1 | 4 | 6 |   |
| 4 | 2 | 4 | 7 | 2 | 7 | 4 | 1 | 8 | 5 | 2 | 7 | 7 | 2 | 9 | 5 |
| 1 | 9 | 2 | 6 | 0 | 4 | 6 | 0 | 1 | 1 | 8 | 1 | 3 | 3 | 9 | 5 |
| 8 | 2 | 2 | 7 | 8 | 1 | 4 | 2 | 6 | 8 | 1 | 7 | 2 | 5 | 3 | 7 |
| 4 | 4 | 4 | 5 | 3 | 2 | 5 | 4 | 7 | 1 | 2 | 6 | 3 | 0 | 5 | 9 |
| 2 | 0 | 2 | 3 | 5 | 5 | 5 | 9 | 2 | 4 | 7 | 3 | 8 | 7 | 6 | 0 |
| 8 | 6 | 9 | 9 | 0 | 7 | 9 | 6 | 0 | 3 | 0 | 2 | 9 | 8 | 0 | 1 |
| 6 | 2 | 6 | 4 | 3 | 2 | 1 | 2 | 4 | 4 | 2 | 8 | 2 | 1 | 8 | 2 |
| 9 | 0 | 4 | 9 | 2 | 4 | 0 | 0 | 1 | 0 | 3 | 2 | 1 | 4 | 9 | 3 |
| 1 | 6 | 3 | 7 | 0 | 4 | 0 | 7 | 5 | 5 | 6 | 4 | 4 | 3 | 2 | 5 |
| 1 | 5 | 5 | 1 | 7 | 5 | 9 | 7 | 0 | 9 | 6 | 5 | 3 | 7 | 1 | 2 |
| 3 | 4 | 1 | 7 | 7 | 6 | 8 | 6 | 0 | 3 | 6 | 6 | 5 | 8 | 5 | 1 |
| 2 | 8 | 7 | 8 | 5 | 8 | 2 | 6 | 1 | 8 | 4 | 9 | 2 | 8 | 6 | 2 |
| 3 | 1 | 0 | 8 | 1 | 0 | 4 | 2 | 9 | 4 | 8 | 6 | 7 | 7 | 5 | 1 |

| # | $\ell$ |
|---|--------|
| 0 |        |
| 1 |        |
| 2 |        |
| 3 |        |
| 4 |        |
| 5 |        |
| 6 |        |
| 7 |        |
| 8 |        |
| 9 |        |

Word Bank (20 total words)

### Prime Factorizations

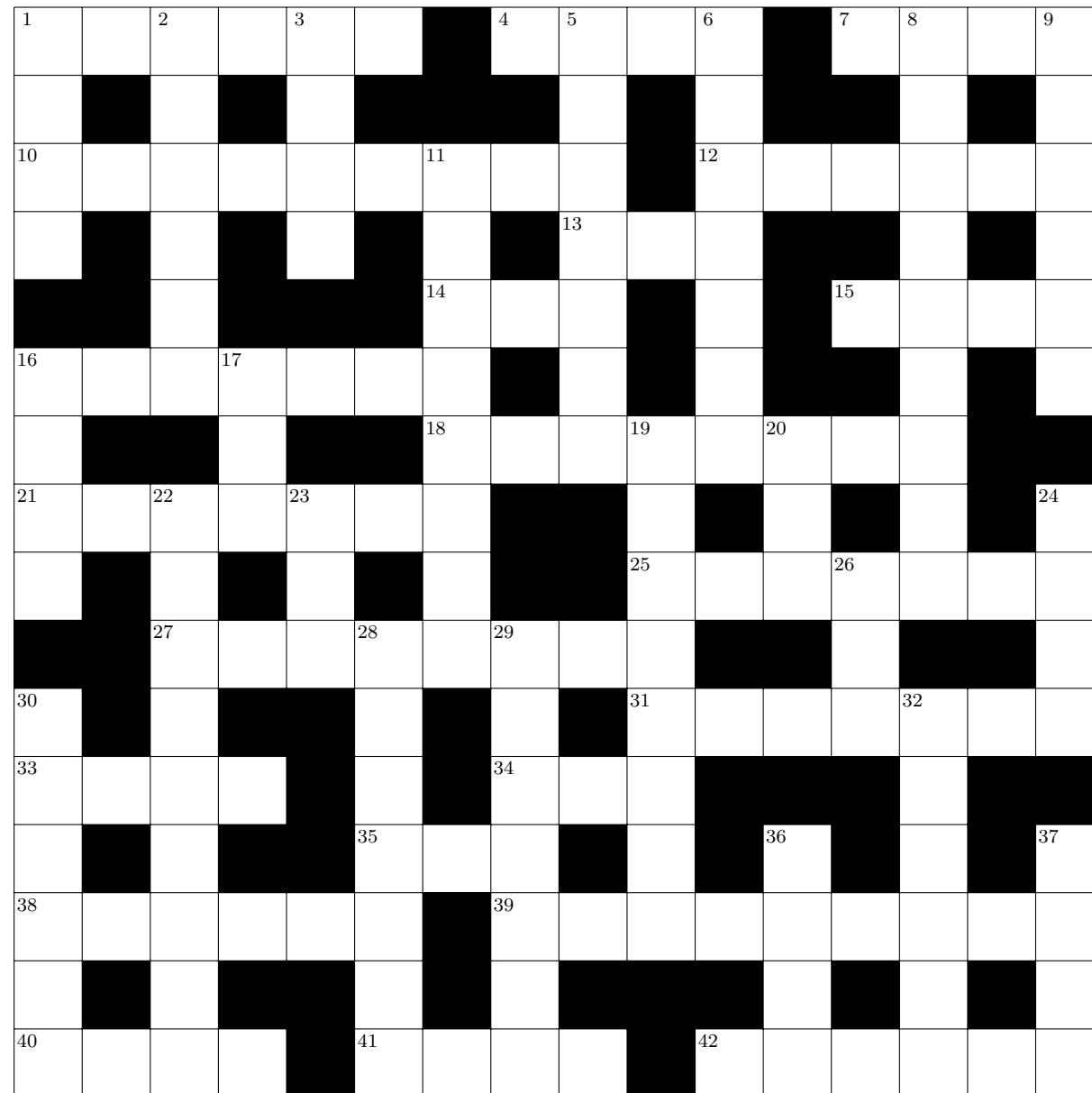
AAM  $\times$  RTR4  
ACE4  $\times$  RE4  
AXM  $\times$  XAXM  
CCA  $\times$  TCX4  
EMM  $\times$  ETA  
SMT  $\times$  SSM  
S4A  $\times$  4SA  
TTA  $\times$  T4AT  
T4T  $\times$  4T4  
URT  $\times$  4UA

### Definitions

An amount of something that is way more than necessary  
Assemble troops in preparation for battle  
Brad whose nickname on “The Chase” is “The Buzzsaw”  
English historic county that contains Hastings  
Gain entry to, perhaps as a result of having an ID badge  
It can be used to predict stock prices or the weather  
Son and successor of Darius the Great  
Time-traveler featured in “Overwatch” cover art  
What comes between lights and action?  
Where a fetus usually develops during gestation

## X Marks the Spot

15 Points



## Across

1. Come to an end, and/or die
1. Length of pant leg
4. Dagger
4. “Toy Story 2” secondary antagonist
7. App for restaurant reviews
7. Protrudes out
10. Final Space Shuttle to be built
10. What a double agent might commit
12. Clothing whose shorthand shares its name with a famous penguin
12. Decent person, from Yiddish
13. Part of a circle
13. Toss
14. Affirmative vote
14. Approximately 8.5397?
15. A cab
15. A sign
16. Chance to refuel in an auto race
16. “Right Round” singer
18. Hold back
18. Survey of people who just voted
21. Home of the Tigers and Pistons
21. “Rock \_\_\_\_\_ (dun dun dun, dun-dun-dun-dun-dun-dun)”
25. Former singles and doubles tennis #1
25. Satellite-based car service by Sirius
27. A military operation to keep fit?
27. What a safari might be for
31. Clarify
31. Made a noise with the nostrils
33. “And others”
33. Part of a horse’s harness
34. Thrice daily, as denoted on a pill bottle (Latin abbr.)

34. It increases your LOVE in “Undertale”
35. Comcast or Verizon, e.g.
35. Palindromic file suffix
38. Blockhead
38. Maelstrom
39. Franchise created by Hideo Kojima
39. Proprietor of a lodge
40. A prank at MIT
40. Biological groups
41. One from Hazzard County, perhaps
41. Weaving apparatus
42. It comes before Romeo?
42. Theoretical physicist who discovered energy quanta

## Down

1. Almost lost: “\_\_\_\_\_ out a win”
1. Goat with large, curved horns
2. Famous lesbian?
2. One obsessed with minor details
3. Horse whose color is muted by white
3. Part of a nerve cell
5. Having no purpose
5. Natalie Portman, Gene Simmons, or Boris Gelfand, e.g.
6. Catsup
6. One who plays the slots, perhaps
8. Constellation with the North Star
8. Estimated the dimensions of
9. Financial gain
9. Riddler of yore
11. Where a brooding bird may be found
11. With “acid”, an amino acid
16. Chess governing body
16. First word of a Tarantino movie title
17. Mission for 10-across, e.g.
17. Palindromic file suffix
19. Era
19. macOS program to read and write RTF documents
20. Boston Bruin who scored Stanley-Cup clinching goal in 1970
20. Tool used by Paul Bunyan and Patrick Bateman (for different purposes)
22. Furious, like some missiles?
22. Movie that is also a transgender allegory
23. Beethoven wrote one “to Joy”
23. When a referee decides a fighter cannot continue
24. Oboe’s mouthpiece
24. Pillow stuffing, or direction to extract letters in this puzzle
26. Binary logic gate
26. Often-torn tissue in the knee
28. Made new versions of songs
28. Music genre played by Korn and Limp Bizkit
29. Fast and lively, like some songs
29. Sharp-pointed mountaineering tool
30. Soft, thick fabric
30. Stealer of Christmas
32. Kyoto Protocol section that sets binding emission targets for European countries
32. Type of bowling
36. Flesh from a calf
36. Sininen, in 42-across
37. Gator-inspired footwear
37. Long journey, following star?



Blåhaj is back again to tell you:

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*Also, please give me fish.*

*Thank you.*

*This page is not a puzzle. When you are done working on the Interschool, please submit only the following two pages.*

SCHOOL NAME: \_\_\_\_\_

SCORE: \_\_\_\_\_

|                                                                                                          |       |       |
|----------------------------------------------------------------------------------------------------------|-------|-------|
| [META] – Papers, Please!                                                                                 | _____ | {150} |
| 1-to-9 Games                                                                                             | _____ | {5}   |
| 200-Meter Heardles                                                                                       | _____ | {5}   |
| 3 Billion, Gagillion, Faillion, Shabadabalo, Shabadamillion, Shabaling, Shabalomillion... Factorizations | _____ | {10}  |
| A Walk in a Rows Garden                                                                                  | _____ | {15}  |
| Answers in the Form of a Question                                                                        | _____ | {5}   |
| Blind Man's Bluff                                                                                        | _____ | {5}   |
| Boom Shakashaka                                                                                          | _____ | {15}  |
| Cracking the Cryptic                                                                                     | _____ | {15}  |
| CYBORG                                                                                                   | _____ | {10}  |
| Desired Salary: \$21,025,001,005,015,010,000                                                             | _____ | {10}  |
| Determine a Nine-Character Word That Parallels Each Clue                                                 | _____ | {10}  |
| Double Down                                                                                              | _____ | {5}   |
| Flags of the World                                                                                       | _____ | {15}  |
| I'm Not Joking, and Don't Call Me Shirley                                                                | _____ | {5}   |
| It Just So Happens...                                                                                    | _____ | {15}  |
| Look Ma, I Made #Starboard!                                                                              | _____ | {10}  |
| Microscopic Masyu                                                                                        | _____ | {10}  |

|                                                                  |       |      |
|------------------------------------------------------------------|-------|------|
| New Neighbors                                                    | _____ | {15} |
| Nonogramming the Last Layer                                      | _____ | {15} |
| Not Just Vocalic...Supervocalic!                                 | _____ | {5}  |
| Page Turners                                                     | _____ | {5}  |
| Prime Directive                                                  | _____ | {5}  |
| Pyramid Scheme                                                   | _____ | {5}  |
| Quiz Bowl                                                        | _____ | {10} |
| Seven Circles of Hell                                            | _____ | {15} |
| Solving a Sudoku With No Given Digits???                         | _____ | {10} |
| SPARE Parts                                                      | _____ | {5}  |
| Subjective Ranking                                               | _____ | {10} |
| The 2023 FAMAT State Convention Open Interschool Individual Test | _____ | {15} |
| The Connecting Wall of Sequences                                 | _____ | {10} |
| They're Always Up to Something                                   | _____ | {10} |
| Triangles and Tribulations                                       | _____ | {10} |
| Video Killed the Radio Star                                      | _____ | {5}  |
| Wool, Isn't This Nice? And Isn't It Iron Pick?                   | _____ | {5}  |
| Word Search “4” the People                                       | _____ | {15} |
| X Marks the Spot                                                 | _____ | {15} |

**Tiebreaker:** *This test was written in L<sup>A</sup>T<sub>E</sub>X. In kilobytes, what is the size of its .tex file? \_\_\_\_\_*