ROYAL STATISTICAL SOCIETY

Christmas QUIZ

2024

**Devised and created by
Dr Tim Paulden
(RSS Quizmaster)**

Teams & solo solvers can submit their solutions until **20:00 GMT on Sunday 5 January 2025** by following the instructions given on the next page of this PDF (and on the website **www.TheXmasPuzzles.com**).

The top three entries received will win a donation of **£150** (1st) / **£120** (2nd) / **£90** (3rd) to a charity or good cause of the team's / solver's choice, and the names of all our prize-winners will be published on the website.

INSTRUCTIONS AND SOLVING TIPS

- Many (but not all) of the twelve puzzles have a Christmas connection. The puzzles are not necessarily ordered by difficulty, and the number of points available for each one is indicated in brackets.

- **You can use any resources you wish to help solve the puzzles, including search engines, computer programs, books, and so on.** Some of the puzzles contain clues that may help you to crack the others. To keep the puzzles fun for everyone, solvers are kindly asked not to post any solutions online until after the entry deadline has passed – thank you! The official solutions will be published in January.

- **Solutions must be briefly explained to receive full credit.** You may also find several of the puzzle titles to be helpful – **for full credit, these titles must also be explained**. And if you spot any interesting links between the puzzles, be sure to note them in your solutions.

- **Any corrections or other announcements between now and the deadline will appear on the website www.TheXmasPuzzles.com under the "Updates" tab, so please check back from time to time.** If you encounter any technical issues or spot an error, please get in touch via the email address TheXmasPuzzles@gmail.com (and/or timpaulden@gmail.com). We are unable to provide any hints – sorry!

- **Submitting your solutions:** Entry is free and open to all, and entries are welcomed both from solo solvers and teams of up to five people. **Solutions should be emailed to TheXmasPuzzles@gmail.com, to arrive by 20:00 GMT on Sunday 5 January 2025**. Please remember to mention your nominated charity / good cause. Receipt of entry will be confirmed via email, and at www.TheXmasPuzzles.com under the "Entries" tab (showing the timestamp and submitter's initials).

- **The top three entries received will win a donation of £150 (1st) / £120 (2nd) / £90 (3rd) to a charity or good cause of the team's / solver's choice.** The quizmaster's decision is final. In the event of a tie, the donation will be split evenly between the relevant charities.

- **Good luck – and *Merry Christmas!***

List of puzzles

Puzzle 1: (4)+(5)+(6) [5 points]

Puzzle 2: A HARDY PERENNIAL [5 points]

Puzzle 3: ONE FOR ALL [7 points]

Puzzle 4: ALL FOR ONE [11 points]

Puzzle 5: ALBO [5 points]

Puzzle 6: (64-69) (70-74) [8 points]

Puzzle 7: SUMMIT [9 points]

Puzzle 8: XMAS '24 [10 points]

Puzzle 9: (4,2,4,2,4) [9 points]

Puzzle 10: SPECIAL DELIVERY [8 points]

Puzzle 11: CONTOURS [11 points]

Puzzle 12: ELEMENTARY^2 [12 points]

Total points available: 100

Puzzle 1: (4)+(5)+(6) [5 points]

What three character names are shared by the following trios, and what message do they reveal when combined (roughly speaking)?

- **Pert K, Janine G, and Robert L (1966)**
- **Candace S, Claire H, and Matt R (2013)**
- **Tayler H, Mike V, and Daniel R (2019)**

Puzzle 2: A HARDY PERENNIAL [5 points]

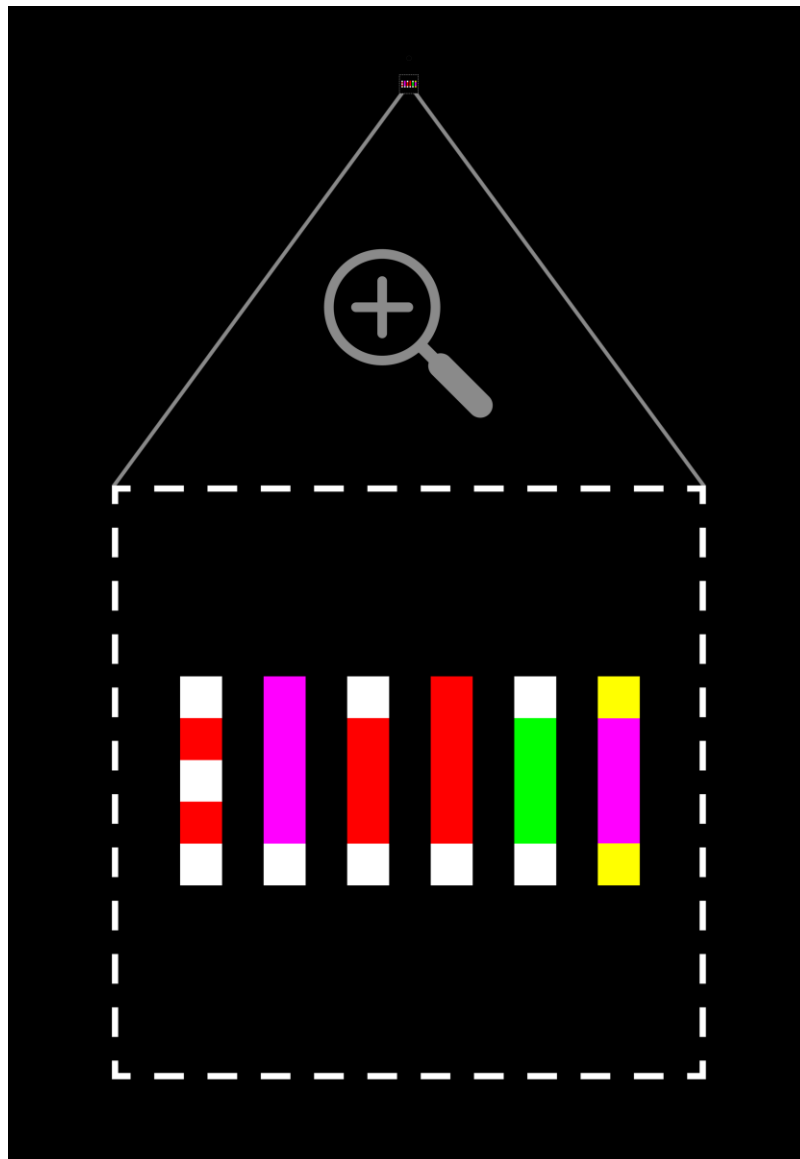Identify the work that is marking a milestone anniversary this year, and whose word lengths follow the pattern below:

<div align="center">

5 4 5 3 4 2 4 2

3 3 1 7 7 2 5 2

5 3 8 5 2 4

4 3 2 3 2 9

</div>

(Note: The '9' in the fourth row could also have been written as '6 3'.)

Puzzle 3: ONE FOR ALL [7 points]

What six-letter name (with both ancient and modern connotations) is represented below, and how is this name also connected to the theme of a later puzzle via the number 12?

(Note: It is not necessary to zoom into the image to solve the puzzle.)

Puzzle 4: ALL FOR ONE [11 points]

In the table below, the five white items (on rows 1 to 5) are standard, and the remaining items are non-standard.

Noting the puzzle's title, what is revealed by combining the four green items (symbolically) and the final white item (colloquially), and why is the red item appropriate?

Which of the items (nominally) depicted this scene in 1907 – and how is their first name linked to the name shared by Puzzles 1 and 5?

Finally, identify the rousing song – closely linked to the above theme – whose name could have provided an alternative title for this puzzle (or a variant thereof).

28×7 + 20×9 + 12×11 + 4×13
4×3 + 24×5 + 36×8
4×2 + 8×3 + 20×4 + 16×6 + 16×8
28×21 + 20×23 + 12×25 + 4×27
64×14
4×23 + 8×24 + 16×25 + 4×27 + 16×29 + 12×33 + 4×35
16×6 + 16×8 + 16×10 + 4×11 + 8×13 + 4×16
4×9 + 8×10 + 16×11 + 4×13 + 16×15 + 12×19 + 4×21
4×4 + 8×6 + 16×8 + 4×9 + 16×12 + 16×16
4×16 + 8×17 + 20×18 + 16×20 + 16×22

Puzzle 5: ALBO [5 points]

Can you complete the sequence below, which was trumpeted around the world 25 years ago? (Note that A and P have been omitted.)

M, E, R, T, S, M, J, ■

Puzzle 6: (64-69) (70-74) [8 points]

A famous name is represented in the image below – can you decrypt it?

(How is this name connected to one of the items in another puzzle?)

Puzzle 7: SUMMIT [9 points]

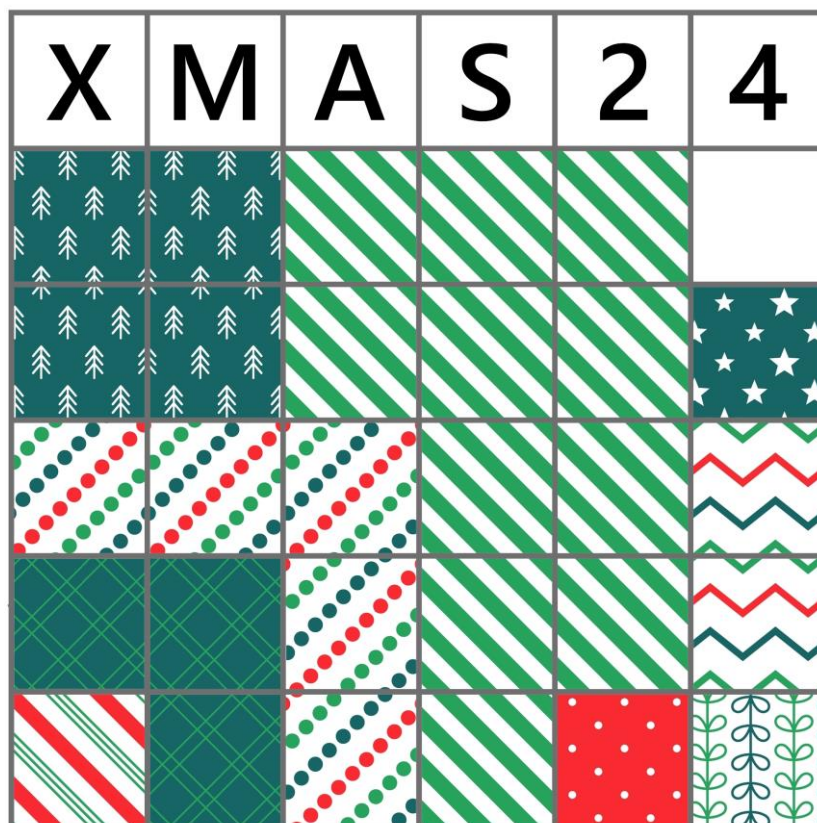What does the table below enumerate? (The three missing digits in the final item should be determined.)

Hint: Luke 11:10.

3×1367827
$17 \times 373 \times 647$
2×2050327
$11 \times 13 \times 28711$
$2 \times 2 \times 2 \times 512761$
$2 \times 2 \times 5 \times 205171$
37×110819
$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 23 \times 929$
43×95401
4101■■■

Puzzle 8: XMAS '24 [10 points]

*Contributed by **Dr Mike Paulden***

After carefully arranging her family's nine Christmas gifts beside their tree, Professor Geri Comet hands each family member a copy of the diagram below, which depicts the front-profile view of the pile of gifts (with gridlines added). She explains that each gift is a cuboid and is thus represented by a square or rectangle of cells within the diagram – although a gift may be partially obscured by other gifts in front of it. Furthermore, each gift sits either on the floor (i.e. touching the bottom edge of the grid) or on top of another gift, with overhang permitted.
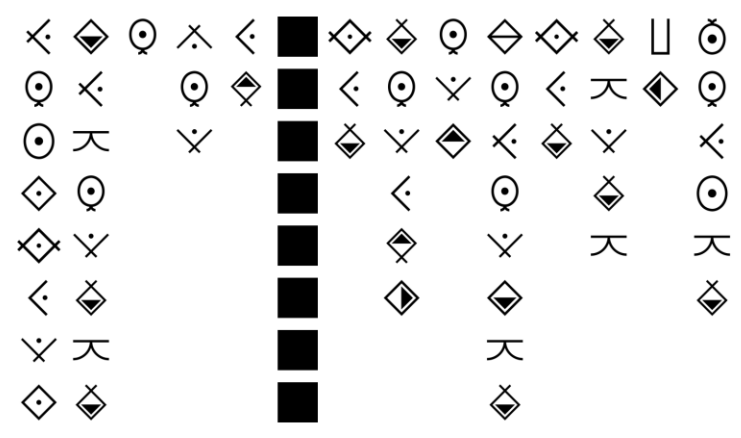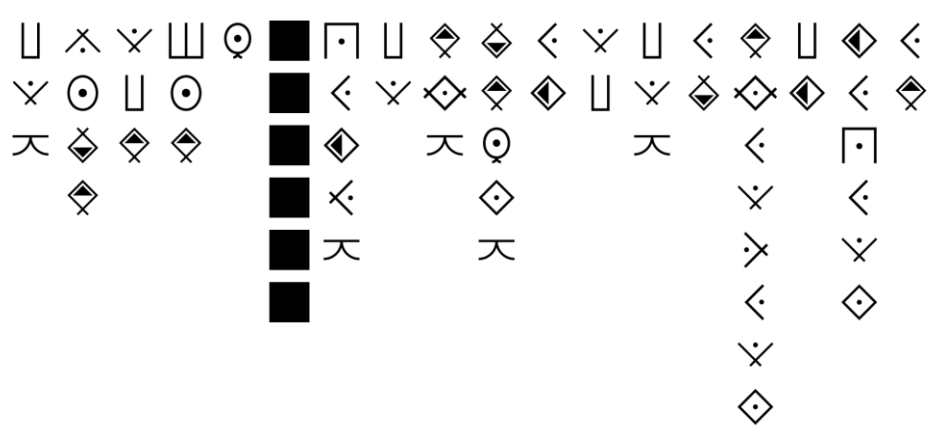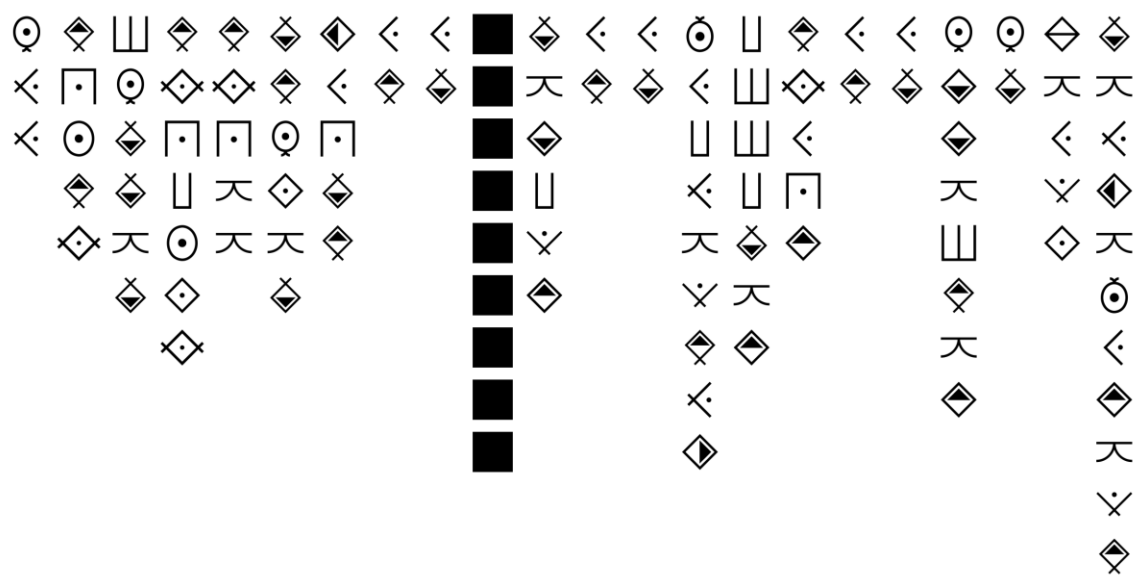

Professor Comet then tells her bewildered family that it is possible to fill in the 6×6 grid such that the symbols **X, M, A, S, 2, 4** appear exactly once in each row and column (note that the first row is already complete) and the 'scores' of the nine gifts form a geometric sequence. The 'score' of a gift is defined as the sum of **all of its cells** (not just the visible cells) when digits are scored 'as is' and letters are scored based on

their alphabetic position. For instance, if the 2×2 region in the bottom-left corner contained the symbols M, S, 2, and 4, then the green 2×2 gift located there would receive a score of 13+19+2+4 = 38, even though only three of its four cells are visible due to the 1×1 gift sitting in front. *(Note: It is easy to see that these particular gifts must have sizes of 2×2 and 1×1 respectively, but some gifts in the puzzle may be larger than they first appear.)*

Can you figure out how Professor Comet's grid should be completed, and determine the score associated with each gift?
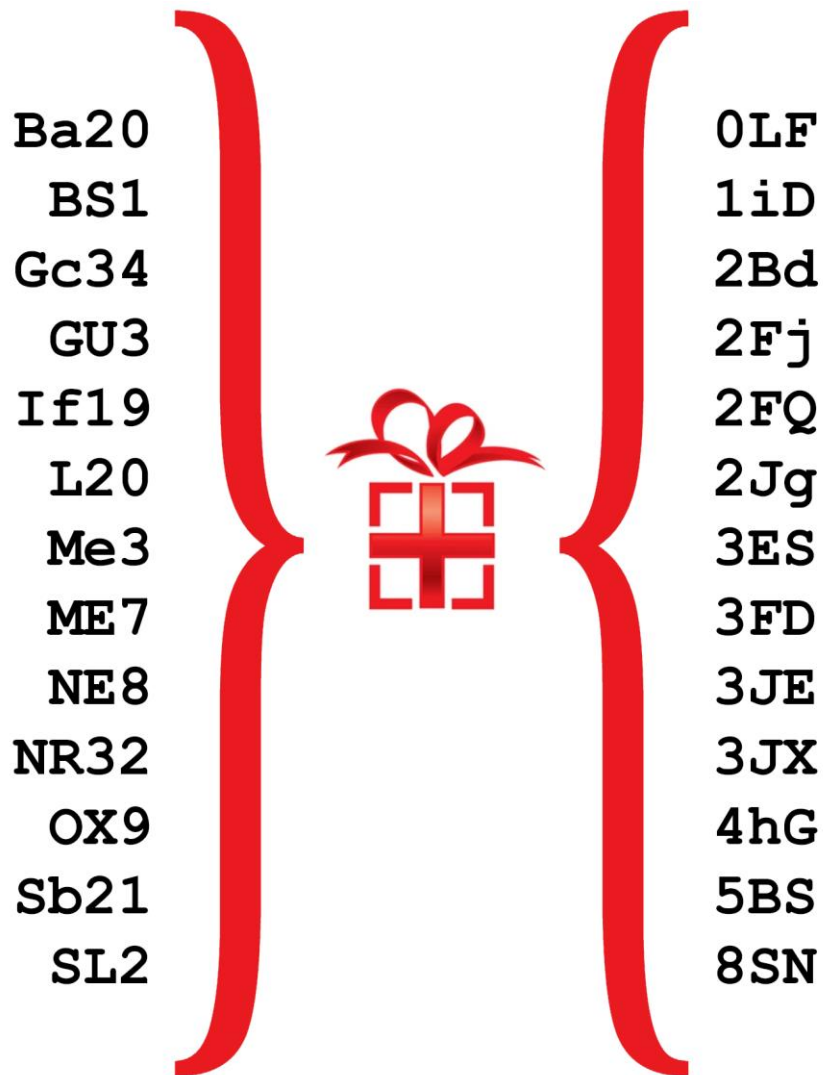
Puzzle 9: (4,2,4,2,4) [9 points]

Whereabouts (specifically) is this puzzle taking us?

Puzzle 10: SPECIAL DELIVERY [8 points]

(Note: The solution to this puzzle comprises two words of five letters, as shown below the diagram.)

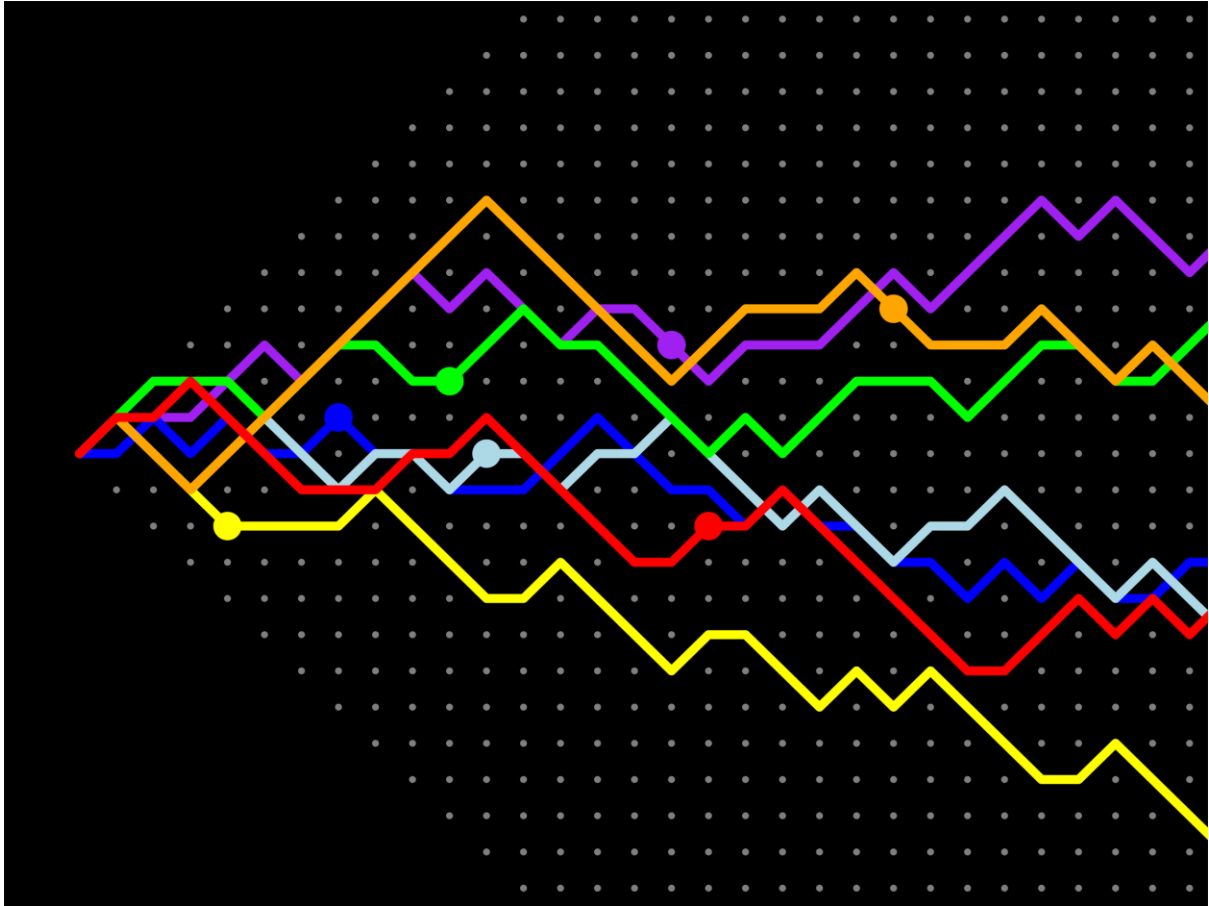|	
Ba20	0LF
BS1	1iD
Gc34	2Bd
GU3	2Fj
If19	2FQ
L20	2Jg
Me3	3ES
ME7	3FD
NE8	3JE
NR32	3JX
OX9	4hG
Sb21	5BS
SL2	8SN

_ _ _ _ _   _ _ _ _ _

Which item in this puzzle has historically been known by several names, one of which echoes an item in Puzzle 4?

Finally, which festive-sounding name (modulo pronunciation) might one associate with the puzzle's solution?

Puzzle 11: CONTOURS [11 points]

Explain the diagram below, and thus reveal the hidden seven-letter word.

— — — — — — —

Explain how a related name can be created by combining the name of a U.S. state (whose abbreviation begins this puzzle's solution) and the first half of an earlier puzzle's solution.

In what sense might an object associated with this puzzle's solution sometimes offer a 'puzzle' of its own?

Finally, what is the fruity connection between this puzzle's solution (at least under one interpretation) and an earlier puzzle's solution?

Puzzle 12: ELEMENTARY[2] [12 points]

Each of the ten answers in this puzzle – indicated by the black boxes below – can be composed in a specific way (with the numbers indicating the associated sum), and each one also appeared initially in a particular collection (with the visible letters indicating the surrounding context).

...NWTSMOAWSH■■■■■■WASBBAPDFW... Σ=202

...TMAAFTBCTW■■■■■■DOTMDFTTOA... Σ=142

...OAHHATDISS■■■■■■■HSTWDASLWW... Σ=222

...ATSDAHRIMC■■■■■■ALASGAMCII... Σ=147

...FJMFHASFAC■■■■■TOTIOBHWTP... Σ=161

...WBPKIMHHCY■■■■■■YFTBJSMUAL... Σ=149

...AHRLOWCTBI■■■■■■WSWSUIHGAI... Σ=190

...TATIWRTTSH■■■■■■FTWCAHUNOE... Σ=149

...IIASBWTSFT■■■■■HSHHSIGOIS... Σ=110

...WAIFMIWEML■■■■■■MSRACTLOAF... Σ=258

Determine the ten answers with the aid of the clues below and the note on the next page (which should be briefly explained):

- One answer is the surname of a famous statistician; another answer is the first name of a famous mathematician.

- One answer is an album featuring a Christmas number one; another answer is a band from the same era who grabbed headlines in 2024.

- One answer is a city that previously hosted the Summer Olympics; another answer is an island located around 9,000 km from that city.

- One answer is a crop sometimes planted as a Christmas tradition; another answer may be provided by a cup of mulled wine or a roaring fire.

- One answer is a name that is central to the puzzle's theme; another answer describes what his creator produced two years prior (AEUTVCITD).

Note: Three of the ten answers are associated with the same item in the collection – this item's title ends with a whole number. Furthermore, this item prominently features the name that is common to Puzzles 1 and 5, and another puzzle's solution also receives an early mention. Two of the remaining seven answers are associated with the item in the collection whose title ends with a homophone of another answer.

Finally...

- In what sense does one of the answers contain an item in the collection?

- How is the item associated with the tenth answer particularly appropriate for this puzzle?

- What word – fittingly for the festive period – is ultimately revealed by the ten answers?