PRACTICE EXAM 6:CCAT GRADE 3 SIMULATION — 170 QUESTIONS

Instructions: Allow 30 minutes per battery (90 minutes total). Choose the best answer. No penalty for incorrect answers. This is the final and most challenging exam in the series — expect the highest difficulty across all nine subtests.

VERBAL BATTERY — 30 Minutes

Section 1: Verbal Analogies (Questions 1–24)

Directions: Choose the answer that completes the second pair using the same relationship as the first pair.

1. cartographer : maps :: lexicographer : ___

A. words

B. language

C. dictionaries

D. grammar

2. famine : food :: exile : ___

A. country

B. travel

C. punishment

D. homeland

3. chrysalis : butterfly :: larva : ___

A. insect

B. moth

C. pupa

D. cocoon

4. arid : humid :: barren : ___

A. empty

B. dry

C. desert

D. fertile

5. constellation : stars :: archipelago : ___

A. islands

B. ocean

C. Pacific

D. geography

6. miser : wealth :: glutton : ___

A. greed

B. food

C. eating

D. hunger

7. dormant : active :: opaque : ___

A. transparent

B. dark

C. visible

D. clear

8. fawn : deer :: leveret : ___

A. rabbit

B. fox

C. badger

D. hare

9. scale : fish :: bark : ___

A. dog

B. tree

C. sound

D. rough

10. lunar : moon :: solar : ___

A. planet

B. orbit

C. light

D. sun

11. meander : river :: spiral : ___

A. shell

B. circle

C. pattern

D. rotation

12. drought : parched :: blizzard : ___

A. cold

B. snow

C. windy

D. frozen

13. prologue : epilogue :: preface : ___

A. index

B. appendix

C. contents

D. chapter

14. zenith : highest :: nadir : ___

A. lowest

B. deepest

C. furthest

D. darkest

15. photosynthesis : plants :: respiration : ___

A. oxygen

B. lungs

C. organisms

D. breathing

16. ambassador : nation :: delegate : ___

A. vote

B. party

C. congress

D. organisation

17. torrent : trickle :: blaze : ___

A. ember

B. fire

C. light

D. flame

18. delta : river :: peninsula : ___

A. coast

B. shore

C. continent

D. sea

19. symmetrical : asymmetrical :: periodic : ___

A. regular

B. irregular

C. aperiodic

D. random

20. predatory : docile :: ferocious : ___

A. fierce

B. angry

C. hostile

D. gentle

21. memoir : life :: treatise : ___

A. science

B. argument

C. subject

D. philosophy

22. conductor : orchestra :: editor : ___

A. writer

B. book

C. newspaper

D. journalist

23. orbit : planet :: rotate : ___

A. spin

B. axis

C. moon

D. earth

24. vaccine : immunity :: fertiliser : ___

A. soil

B. crop

C. growth

D. farming

Section 2: Sentence Completion (Questions 25–44)

Directions: Choose the word that best completes each sentence.

25. The historian spent a decade gathering evidence before she was finally able to ___ the long-disputed theory with conclusive proof.

A. question

B. repeat

C. suggest

D. confirm

26. The chef insisted on using only the freshest ingredients, believing that the quality of the final dish was entirely ___ on what went into it.

A. dependent

B. focused

C. improved

D. reflected

27. The remote island had remained completely ___ for centuries before a passing ship finally reported its existence to the outside world.

A. populated

B. mapped

C. uninhabited

D. explored

28. Despite weeks of rehearsal, the opening night performance was so ___ with technical problems that the director considered stopping the show midway through.

A. polished

B. plagued

C. successful

D. memorable

29. The judge reminded both parties that the court's decision would be ___ and that no further appeals would be permitted.

A. final

B. pending

C. provisional

D. reviewable

30. The deep-sea expedition uncovered life forms so ___ that scientists spent years trying to classify them into existing biological categories.

A. familiar

B. well-documented

C. predictable

D. unusual

31. The volunteer worked tirelessly at the food bank, driven by a deep ___ to help those in her community who were struggling.

A. obligation

B. instruction

C. commitment

D. career

32. The city's flood defences had been so thoroughly ___ over the preceding decade that they held firm even against the most severe storm in fifty years.

A. reinforced

B. neglected

C. tested

D. discussed

33. The young programmer wrote code so ___ that her supervisor described it as the cleanest and most efficient he had seen in his twenty years in the industry.

A. disorganised

B. untested

C. elegant

D. error-prone

34. The manuscript had been altered so many times over the centuries that scholars could no longer determine which sections were ___ and which had been added later.

A. original

B. translated

C. copied

D. significant

35. The ambassador maintained a carefully ___ expression throughout the negotiations, revealing nothing of her country's true position.

A. joyful

B. pained

C. neutral

D. confident

36. The rescue team was ___ to discover that three of the missing climbers had already found shelter and were waiting safely in a cave near the summit.

A. disappointed

B. relieved

C. concerned

D. unsurprised

37. The research team's findings were so ___ that they were immediately published in three of the world's leading scientific journals.

A. significant

B. obscure

C. incomplete

D. preliminary

38. Although the treaty had been signed decades earlier, tensions between the two nations had never fully ___ and the border remained disputed.

A. increased

B. begun

C. escalated

D. subsided

39. The astronaut described the view from the space station as so ___ that no photograph could do justice to the sight of Earth from that altitude.

A. breathtaking

B. familiar

C. unremarkable

D. distant

40. The council's decision to cancel the annual festival was met with ___ from residents who had celebrated the event for generations.

A. approval

B. opposition

C. indifference

D. enthusiasm

41. The ancient mechanism had lain undisturbed for two thousand years, yet when archaeologists activated it, every component still functioned with remarkable ___.

A. difficulty

B. damage

C. uncertainty

D. precision

42. The linguist had spent forty years studying a language spoken by fewer than twenty people, knowing that once its last speaker died, it would be ___ forever.

A. preserved

B. translated

C. lost

D. documented

43. The expedition leader warned that conditions in the polar region could become ___ at any moment and that every team member must remain prepared to act immediately.

A. dangerous

B. pleasant

C. predictable

D. manageable

44. The newly appointed minister promised that the controversial policy would be ___ within the first hundred days of the administration's term.

A. extended

B. celebrated

C. maintained

D. abolished

Section 3: Verbal Classification (Questions 45–60)

Directions: The three words in each question share a common property. Choose the word that belongs to the same category.

45. isosceles   scalene   equilateral

A. rhombus

B. triangle type

C. acute

D. polygon

46. stalactite   stalagmite   flowstone

A. rock

B. mineral

C. crystal

D. speleothem

47. ampere   volt   ohm

A. watt

B. current

C. charge

D. resistance

48. cumulus   stratus   cirrus

A. rain

B. nimbus

C. sky

D. weather

49. sedimentary   igneous   metamorphic

A. mineral

B. crystal

C. fossil

D. rock type

50. photon   electron   neutron

A. subatomic particle

B. atom

C. nucleus

D. energy

51. peninsula   cape   isthmus

A. island

B. landform

C. coast

D. continent

52. syntax   morphology   phonology

A. grammar

B. sentence

C. linguistics branch

D. language

53. baroque   renaissance   impressionism

A. painting

B. artist

C. colour

D. art movement

54. deforestation   pollution   desertification

A. climate

B. nature

C. environmental degradation

D. ecology

55. stratosphere   troposphere   thermosphere

A. cloud

B. wind

C. altitude

D. atmospheric layer

56. iamb   trochee   dactyl

A. verse

B. rhyme

C. poetic metre

D. stanza

57. monopoly   oligopoly   duopoly

A. trade

B. price

C. profit

D. market structure

58. anaphora   epistrophe   chiasmus

A. rhetorical device

B. argument

C. speech

D. logic

59. boreal   temperate   tropical

A. humid

B. warm

C. climate zone

D. season

60. longitude   latitude   azimuth

A. position

B. direction

C. navigation coordinate

D. map

QUANTITATIVE BATTERY — 30 Minutes

Section 4: Number Analogies (Questions 61–78)

Directions: Find the rule connecting each pair. Choose the number that completes the third pair.

61. (3 → 8)   (7 → 48)   (5 → ?)

A. 20

B. 24

C. 26

D. 30

62. (2 → 3)   (5 → 24)   (4 → ?)

A. 10

B. 12

C. 14

D. 15

63. (6 → 42)   (4 → 28)   (9 → ?)

A. 63

B. 54

C. 72

D. 45

64. (5 → 28)   (3 → 10)   (4 → ?)

A. 16

B. 18

C. 17

D. 20

65. (8 → 3)   (14 → 6)   (20 → ?)

A. 10

B. 9

C. 11

D. 8

66. (3 → 12)   (7 → 28)   (11 → ?)

A. 44

B. 40

C. 48

D. 33

67. (2 → 9)   (5 → 27)   (4 → ?)

A. 16

B. 18

C. 21

D. 24

68. (4 → 63)   (3 → 26)   (2 → ?)

A. 5

B. 8

C. 7

D. 9

69. (6 → 4)   (10 → 8)   (15 → ?)

A. 13

B. 11

C. 12

D. 14

70. (5 → 30)   (8 → 72)   (6 → ?)

A. 36

B. 40

C. 42

D. 48

71. (9 → 82)   (4 → 17)   (7 → ?)

A. 46

B. 52

C. 50

D. 48

72. (3 → 6)   (9 → 18)   (15 → ?)

A. 28

B. 30

C. 32

D. 24

73. (2 → 5)   (6 → 37)   (4 → ?)

A. 18

B. 20

C. 17

D. 22

74. (8 → 4)   (12 → 6)   (18 → ?)

A. 7

B. 9

C. 8

D. 10

75. (4 → 17)   (7 → 50)   (5 → ?)

A. 24

B. 27

C. 26

D. 28

76. (6 → 6)   (11 → 11)   (9 → ?)

A. 9

B. 8

C. 10

D. 12

77. (3 → 28)   (5 → 126)   (2 → ?)

A. 7

B. 8

C. 9

D. 10

78. (5 → 4)   (9 → 8)   (14 → ?)

A. 11

B. 12

C. 14

D. 13

Section 5: Number Series (Questions 79–96)

Directions: Choose the number that correctly fills the blank in each sequence.

79. 2, 5, 10, 17, 26, 37, ___

A. 48

B. 51

C. 50

D. 54

80. 3, 6, 12, 24, 48, 96, ___

A. 144

B. 168

C. 180

D. 192

81. 1, 4, 13, 40, 121, ___

A. 356

B. 362

C. 364

D. 370

82. 7, 14, 13, 26, 25, 50, ___

A. 49

B. 47

C. 51

D. 53

83. 1, 1, 2, 3, 5, 8, 13, ___

A. 18

B. 21

C. 20

D. 24

84. 3, 4, 6, 10, 18, 34, ___

A. 66

B. 60

C. 64

D. 68

85. 2, 6, 12, 20, 30, ___

A. 38

B. 44

C. 42

D. 40

86. 5, 10, 9, 18, 17, 34, ___

A. 30

B. 36

C. 32

D. 33

87. 4, 9, 16, 25, 36, ___

A. 44

B. 46

C. 49

D. 52

88. 1, 3, 9, 27, 81, ___

A. 243

B. 162

C. 189

D. 324

89. 6, 11, 17, 24, 32, 41, ___

A. 50

B. 53

C. 51

D. 54

90. 8, 4, 2, 1, ___

A. 0.5

B. 0.25

C. 0

D. 1

91. 3, 5, 9, 17, 33, ___

A. 63

B. 65

C. 60

D. 67

92. 10, 13, 17, 22, 28, 35, ___

A. 43

B. 41

C. 45

D. 47

93. 2, 3, 5, 8, 13, 21, 34, ___

A. 52

B. 56

C. 55

D. 58

94. 4, 12, 11, 33, 32, 96, ___

A. 92

B. 97

C. 94

D. 95

95. 1, 2, 4, 8, 16, 32, ___

A. 64

B. 48

C. 56

D. 72

96. 5, 11, 23, 47, 95, ___

A. 180

B. 188

C. 191

D. 194

Section 6: Number Puzzles (Questions 97–114)

Directions: Find the number that makes each equation true.

97. __ × (8 − 3) = 45

A. 7

B. 9

C. 8

D. 6

98. (3 × __) + (4 × __) = 49 where both blanks are equal

A. 7

B. 6

C. 8

D. 9

99. 9 × 8 = __ + 35

A. 38

B. 37

C. 36

D. 39

100. (__ × 6) − 18 = 48

A. 9

B. 10

C. 12

D. 11

101. 7 × __ = 3 × 21

A. 9

B. 7

C. 8

D. 6

102. 5 × (__ + 7) = 65

A. 5

B. 7

C. 4

D. 6

103. __ ÷ 7 = 9 − 2

A. 42

B. 56

C. 49

D. 35

104. (__ + 9) × 3 = 51

A. 6

B. 8

C. 7

D. 5

105. 8 × 9 = __ × 4 + 8

A. 16

B. 14

C. 18

D. 12

106. __ − (7 × 6) = 24

A. 62

B. 64

C. 66

D. 68

107. (__ × 4) + (__ × 4) = 56 where both blanks are equal

A. 5

B. 7

C. 6

D. 8

108. 11 × __ = 143

A. 11

B. 13

C. 12

D. 14

109. (__ ÷ 9) + 6 = 11

A. 45

B. 36

C. 54

D. 27

110. $6 \times (\_\_ - 4) = 54$

A. 12

B. 14

C. 13

D. 15

111. $\_\_ \times 12 = 8 \times 15$

A. 8

B. 10

C. 9

D. 12

112. $(80 - \_\_) \div 5 = 12$

A. 20

B. 25

C. 15

D. 30

113. $9 \times \_\_ = 6 \times 15$

A. 8

B. 10

C. 12

D. 15

114. __ × (3 + 4) = 6 × 14

A. 10

B. 11

C. 13

D. 12

NONVERBAL BATTERY — 30 Minutes

Section 7: Figure Matrices (Questions 115–136)

Directions: Each question shows a 2×2 grid with three shapes and one empty cell. Choose the answer that correctly completes the grid.

115.

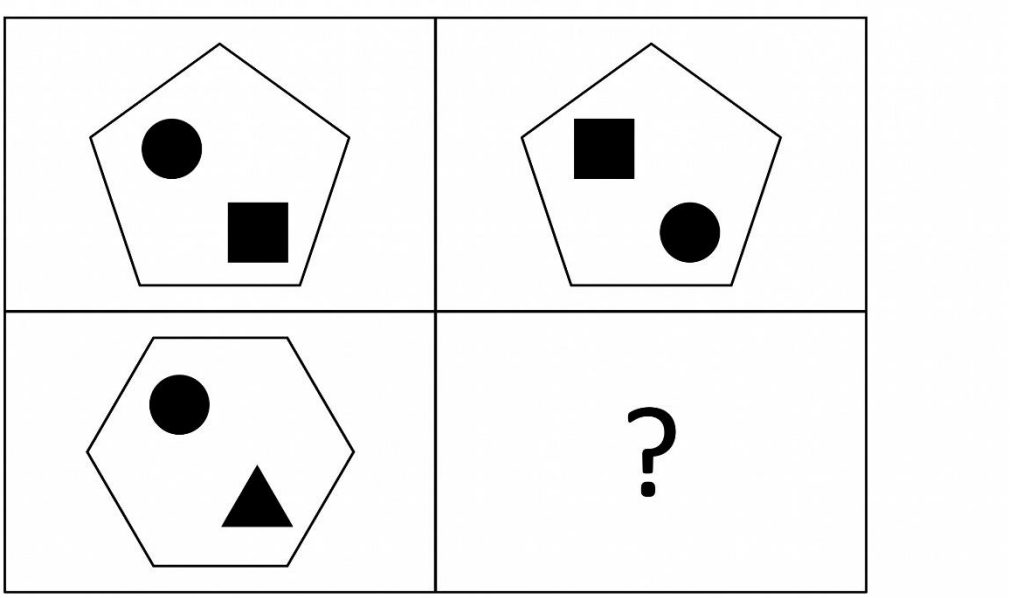


Figure PQ-1: Internal Position Swap with Container Change Matrix

A. hexagon with triangle top-left and circle bottom-right

B. hexagon with circle top-left and triangle bottom-right

C. hexagon with triangle bottom-left and circle top-right

D. pentagon with triangle top-left and circle bottom-right

116.

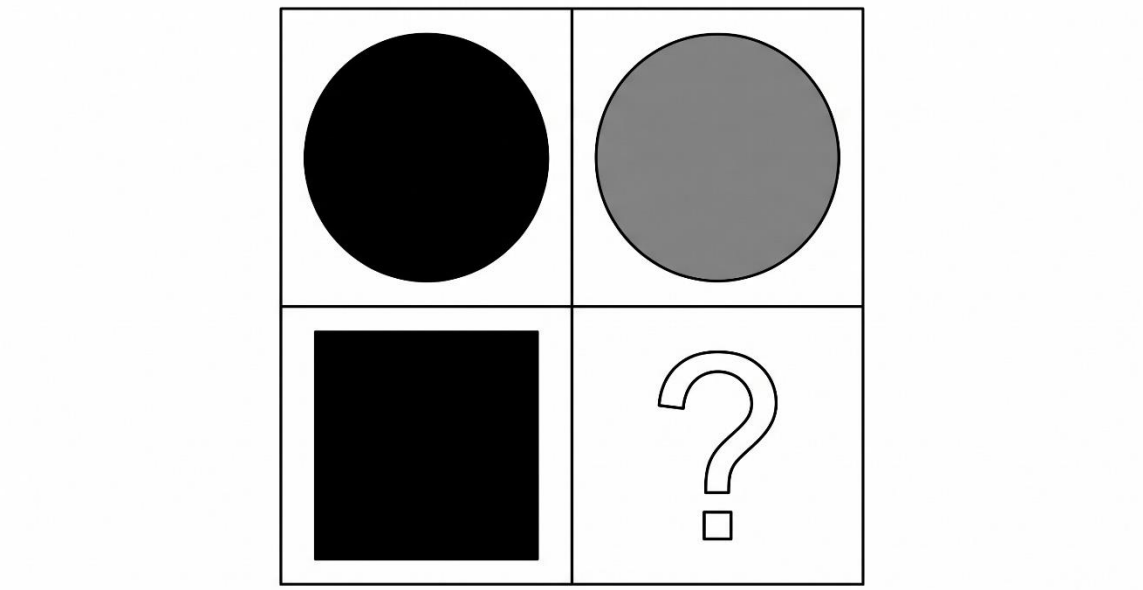


Figure PQ-2: Black to Grey Shading Change with Shape Change Matrix

A. large white square

B. large striped square

C. large solid black square

D. large solid grey square

117.

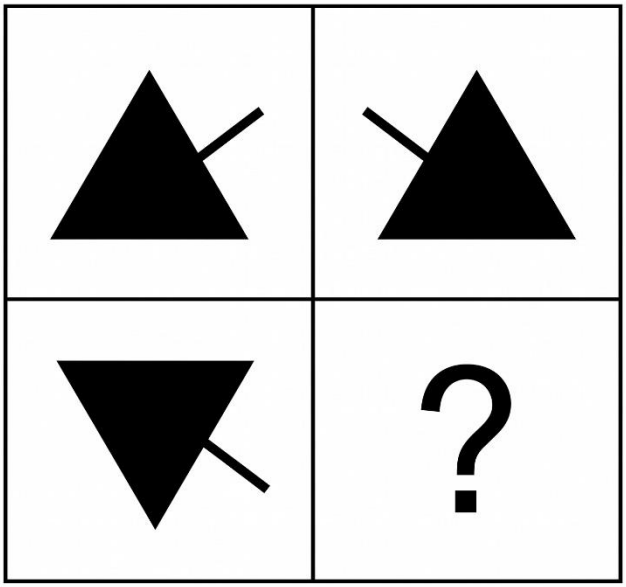


Figure PQ-3: Attached Line Horizontal Reflection Matrix

A. downward triangle with line extending upward

B. downward triangle with line extending to the right

C. downward triangle with line extending to the left

D. upward triangle with line extending to the left

118.

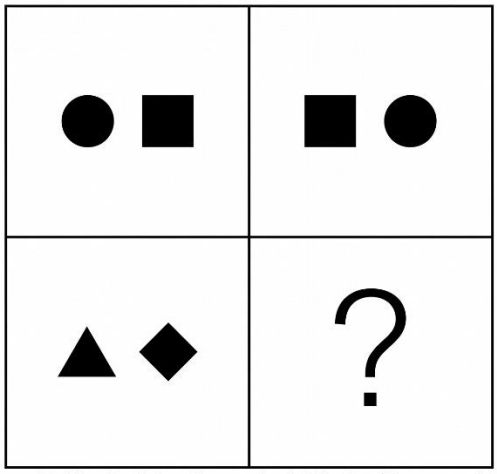


Figure PQ-4: Horizontal Pair Swap Matrix

A. triangle to the right of diamond

B. diamond to the right of circle

C. circle to the right of triangle

D. diamond to the right of triangle

119.

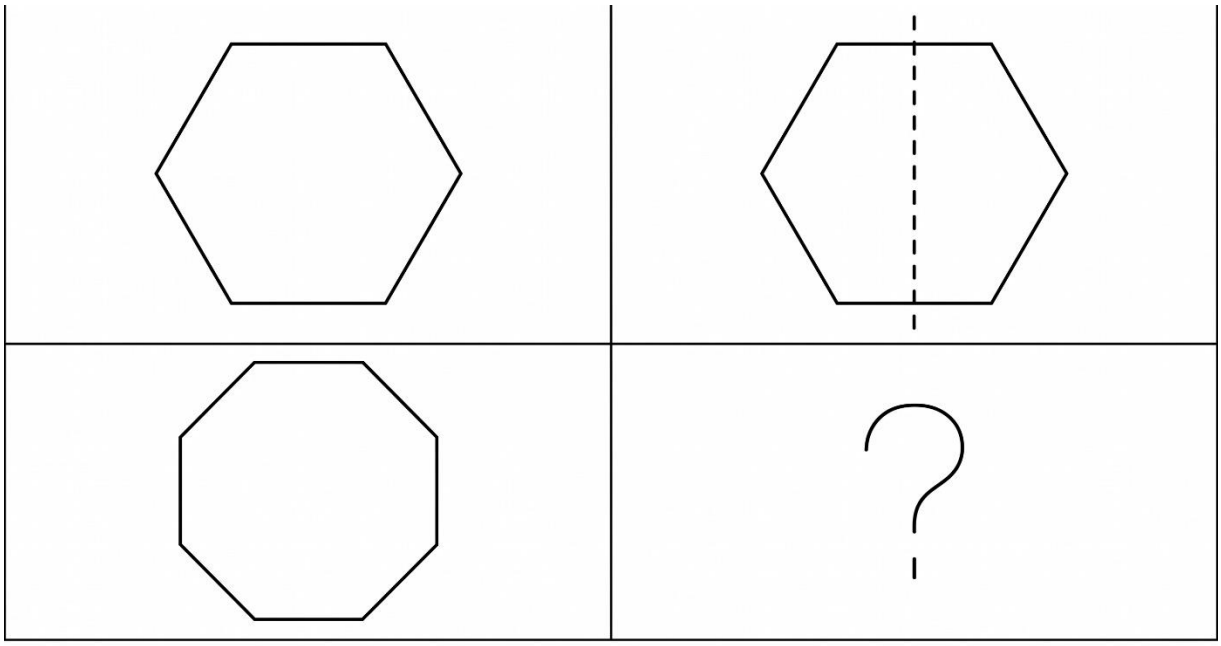


Figure PQ-5: Symmetry Line Addition with Shape Change Matrix

A. white hexagon with vertical line

B. white octagon with vertical symmetry line

C. white octagon with horizontal line

D. solid black octagon

120.

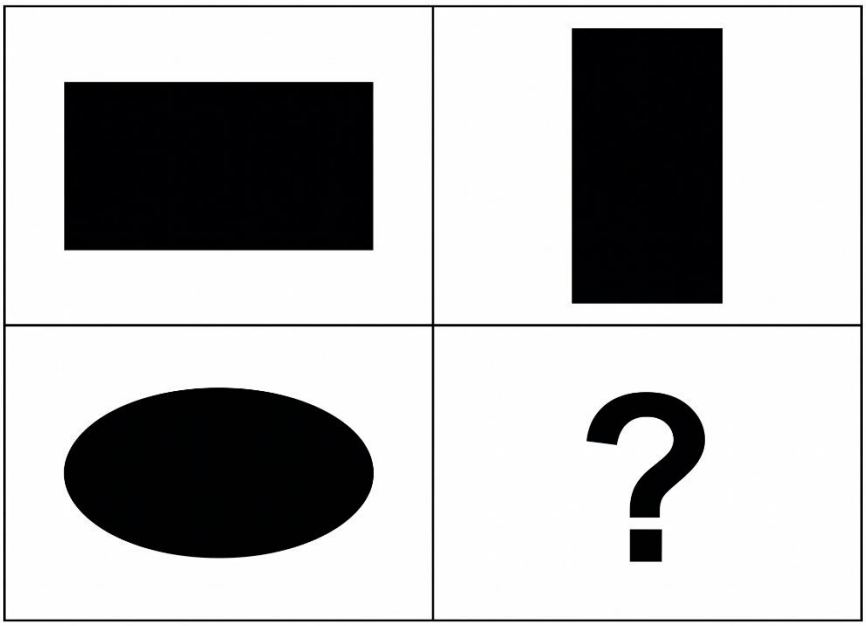


Figure PQ-6: Orientation Rotation — Black Rectangle to Oval

A. large white oval vertical

B. large grey oval vertical

C. large solid black oval vertical

D. large solid black oval horizontal

121.

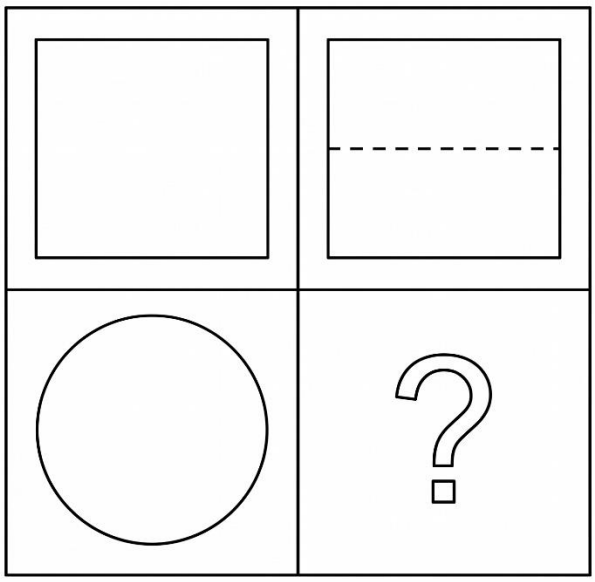


Figure PQ-7: Horizontal Dividing Line Addition with Shape Change Matrix

A. large solid black circle

B. large white circle

C. large white circle with no line

D. large white circle with horizontal dividing line through its interior

122.

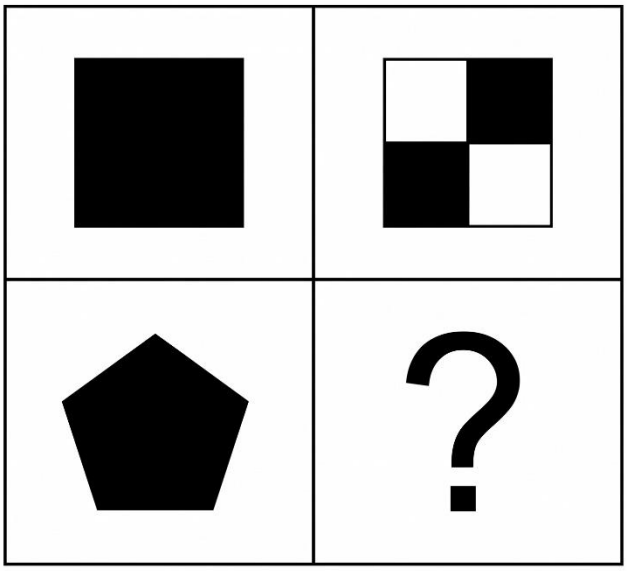


Figure PQ-8: Solid Black to Checkerboard Fill with Shape Change Matrix

A. white pentagon outline only

B. pentagon with 4-quadrant checkerboard fill

C. solid black pentagon

D. grey pentagon

123.

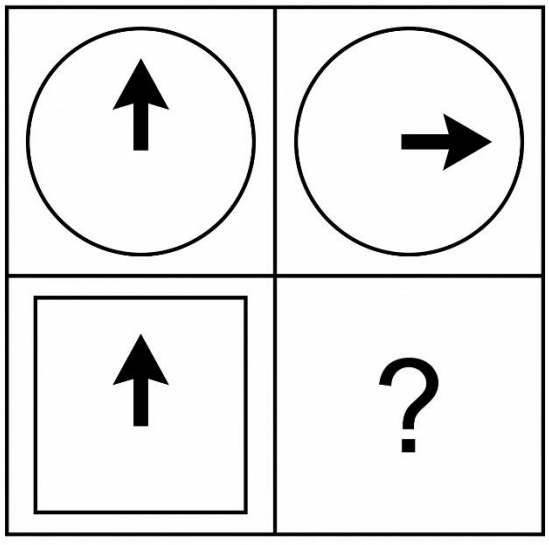


Figure PQ-9: Internal Arrow Rotation Matrix

A. white circle with arrow pointing right

B. white square with arrow pointing down

C. white square with arrow pointing right

D. white square with arrow pointing left

124.

Grid — Row 1: [large white triangle — 0 internal dots] | [large white triangle — 3 internal dots in a triangle arrangement]. Row 2: [large white diamond — 0 internal dots] | [?].

Rule: 3 internal dots added across rows; shape type changes triangle→diamond down columns.

A. large white diamond with 3 dots in triangle arrangement

B. large white triangle with 3 dots

C. large black diamond with 3 dots

D. large white diamond with 1 dot

125.

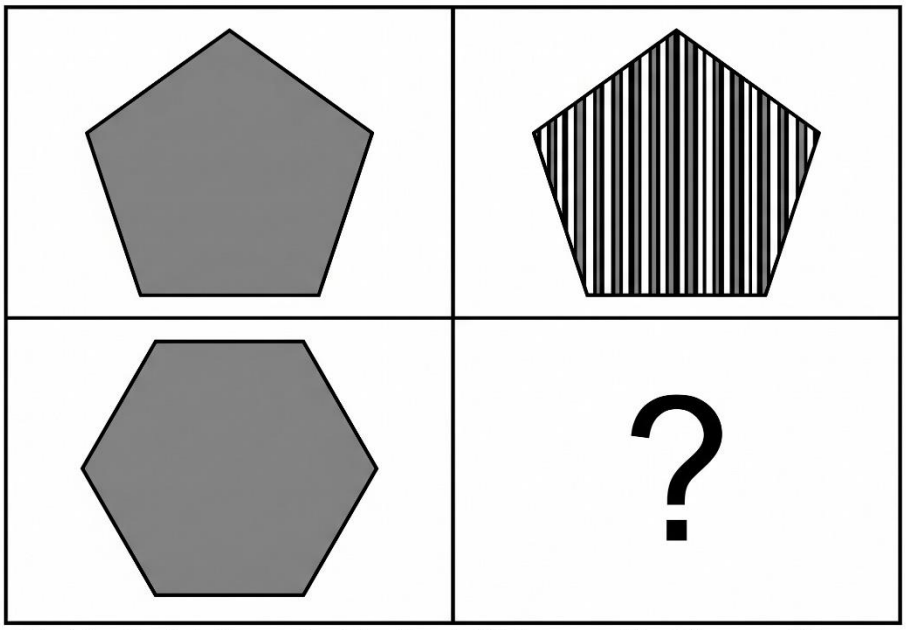


Figure PQ-10: Solid Grey to Vertical Stripes with Shape Change Matrix

A. large solid black hexagon

B. large white hexagon

C. large horizontally striped hexagon

D. large vertically striped hexagon

126.

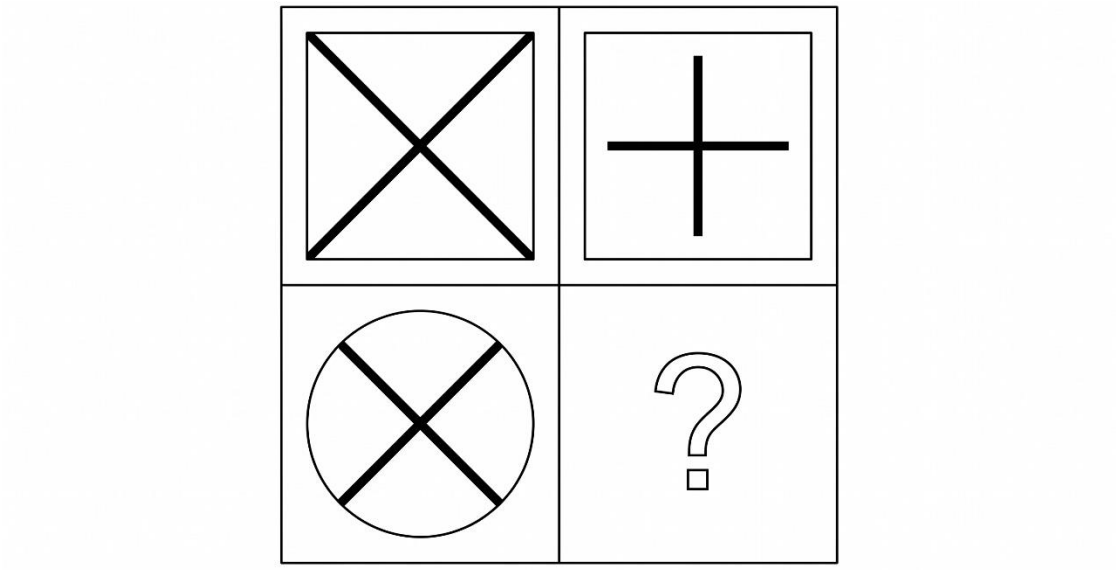


Figure PQ-11: X to Plus Sign Internal Pattern Change Matrix

A. large white circle with a bold solid black plus sign (+) inside

B. large white circle with a bold solid black X inside

C. large solid black circle

D. large white circle with diagonal line only

127.

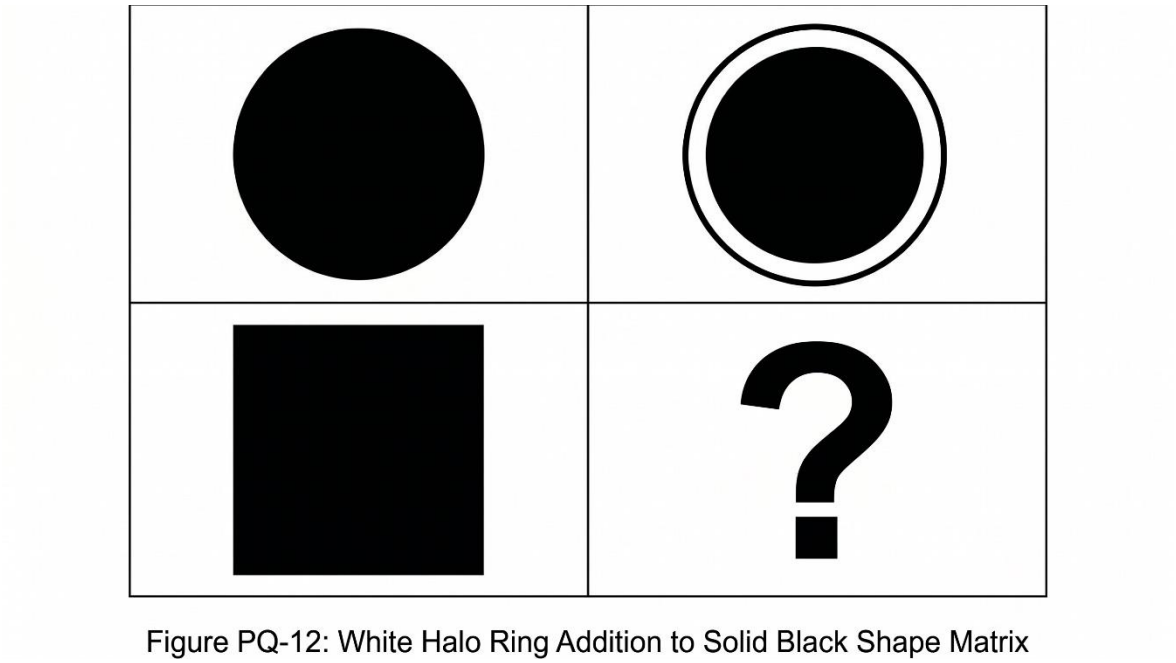


Figure PQ-12: White Halo Ring Addition to Solid Black Shape Matrix

A. large solid black square with white ring around its perimeter

B. large white square

C. large grey square

D. large solid black square with black border

128.

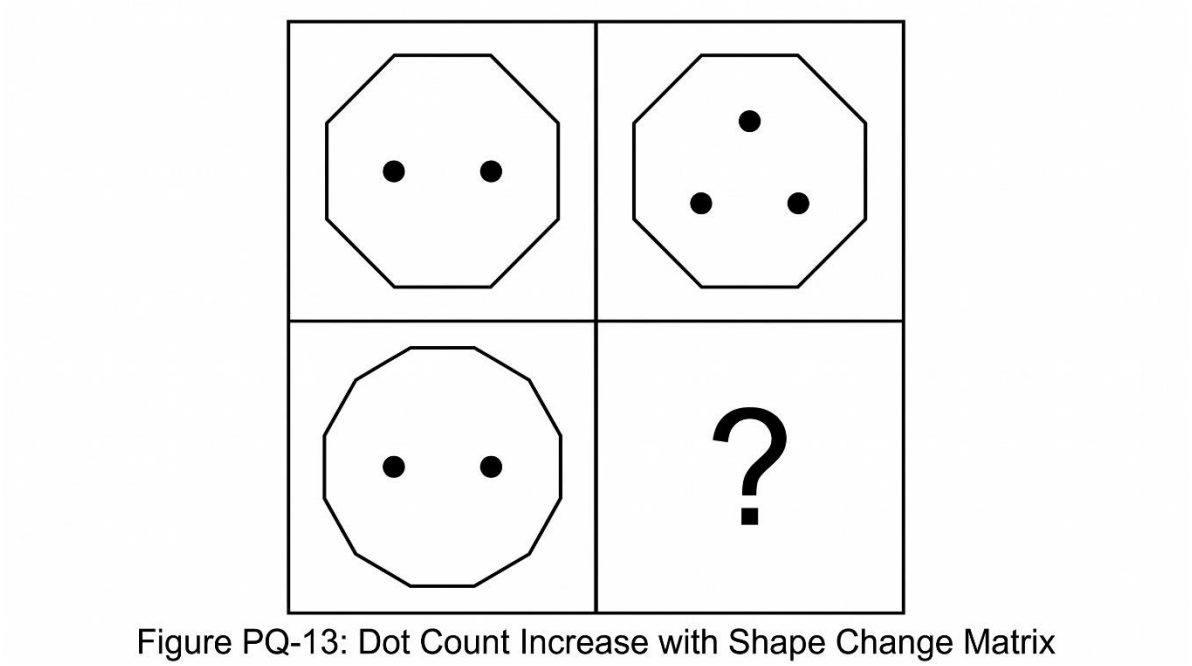


Figure PQ-13: Dot Count Increase with Shape Change Matrix

A. white octagon with 3 dots

B. white square with 3 dots

C. white decagon with 3 dots in triangle arrangement

D. white decagon with 2 dots

129.

Grid — Row 1: [white square with 0 internal lines] | [white square with 4 internal lines — 2 diagonal + 2 midpoint lines forming an asterisk/star pattern]. Row 2: [white pentagon with 0 internal lines] | [?].

Rule: 4 internal lines (asterisk pattern) added across rows; shape type changes square→pentagon down columns.

A. white square with 4 lines

B. white pentagon with 4 internal lines in asterisk pattern

C. black pentagon with 4 lines

D. white pentagon with 2 lines

130.

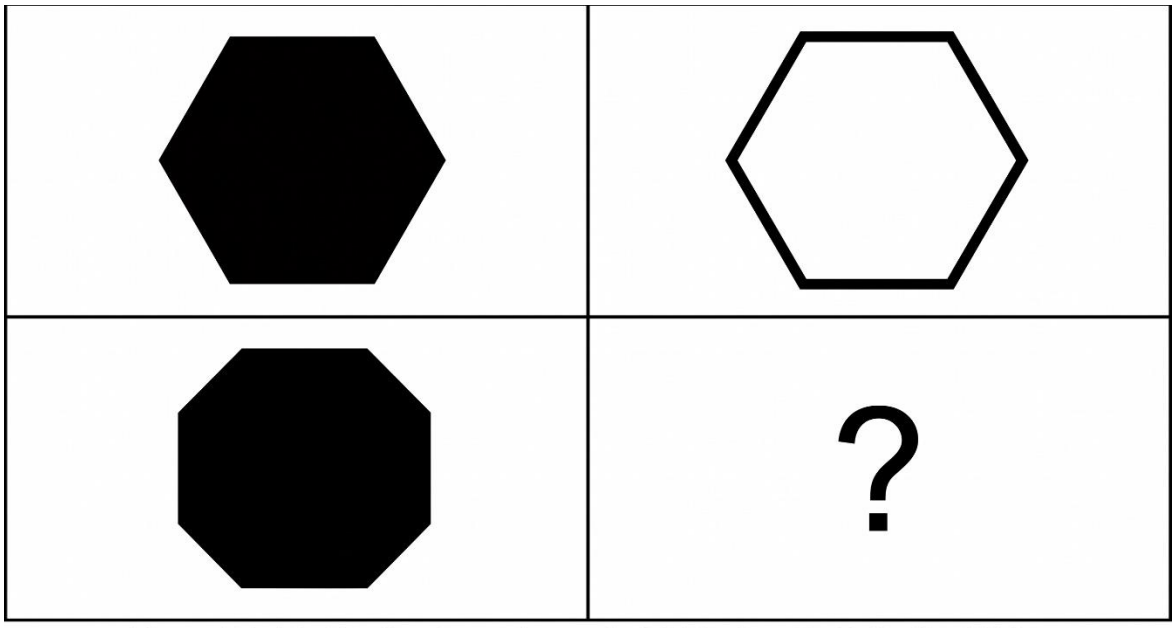


Figure PQ-14: Shading Inversion — Solid Black to Bold-Outline White

A. large white octagon with thin outline

B. large grey octagon

C. large solid black octagon

D. large white octagon with thick bold border

131.

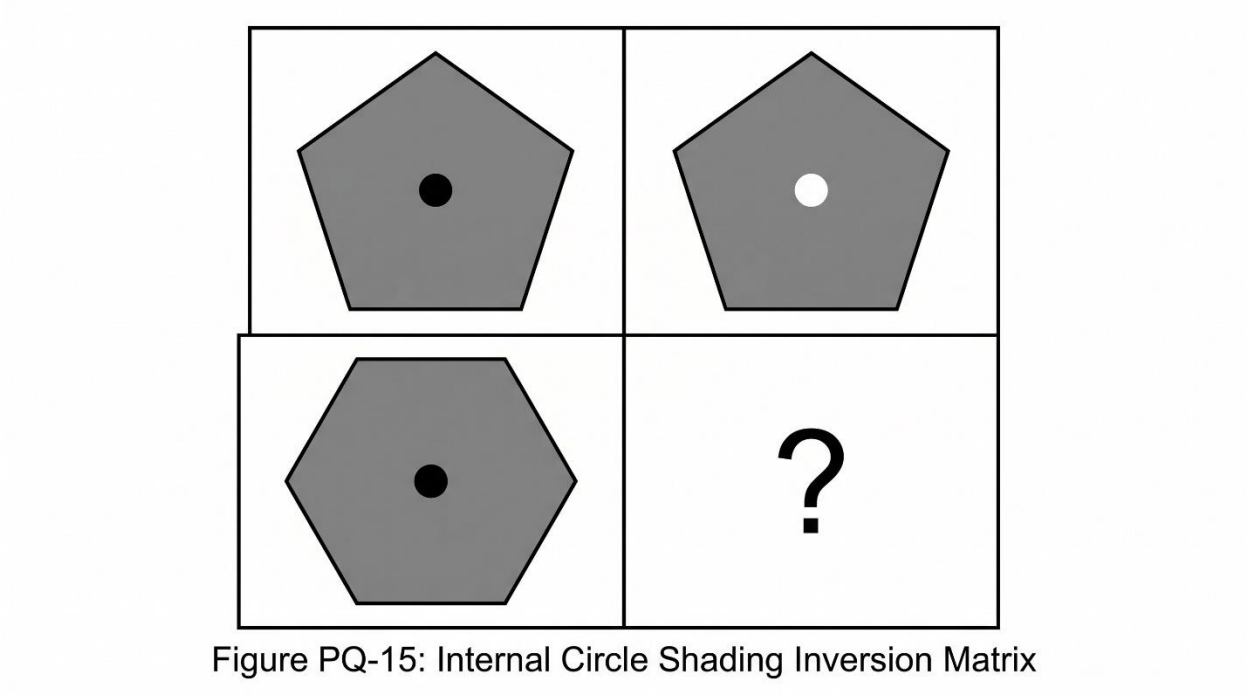


Figure PQ-15: Internal Circle Shading Inversion Matrix

A. large solid grey hexagon with small white circle at centre

B. large solid black hexagon with small white circle

C. large white hexagon with small black circle

D. large solid grey hexagon with small black circle at centre

132.

Grid — Row 1: [small white pentagon] | [large white pentagon]. Row 2: [small solid black pentagon] | [?]. Two rules: size increases small→large across rows; shading changes white→black down columns.

A. large white pentagon

B. large solid black pentagon

C. small white pentagon

D. small solid black pentagon

133.

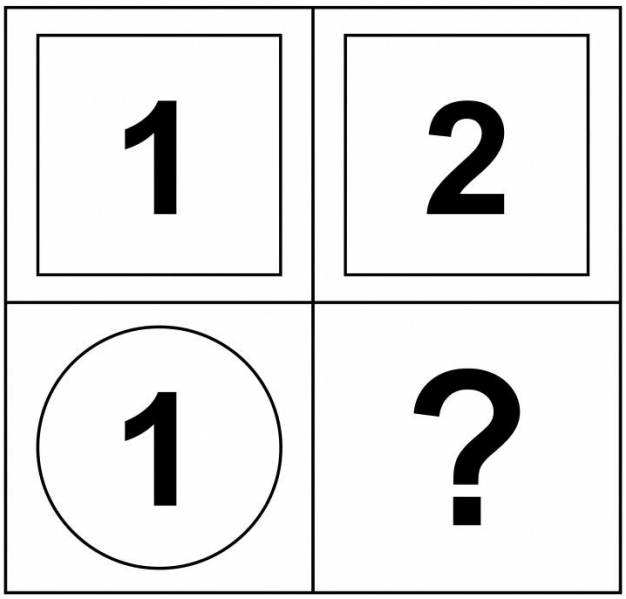


Figure PQ-16: Internal Number Increment with Shape Change Matrix

A. large white circle with bold number "2" inside

B. large white square with bold number "2" inside

C. large white circle with bold number "3" inside

D. large solid black circle

134.

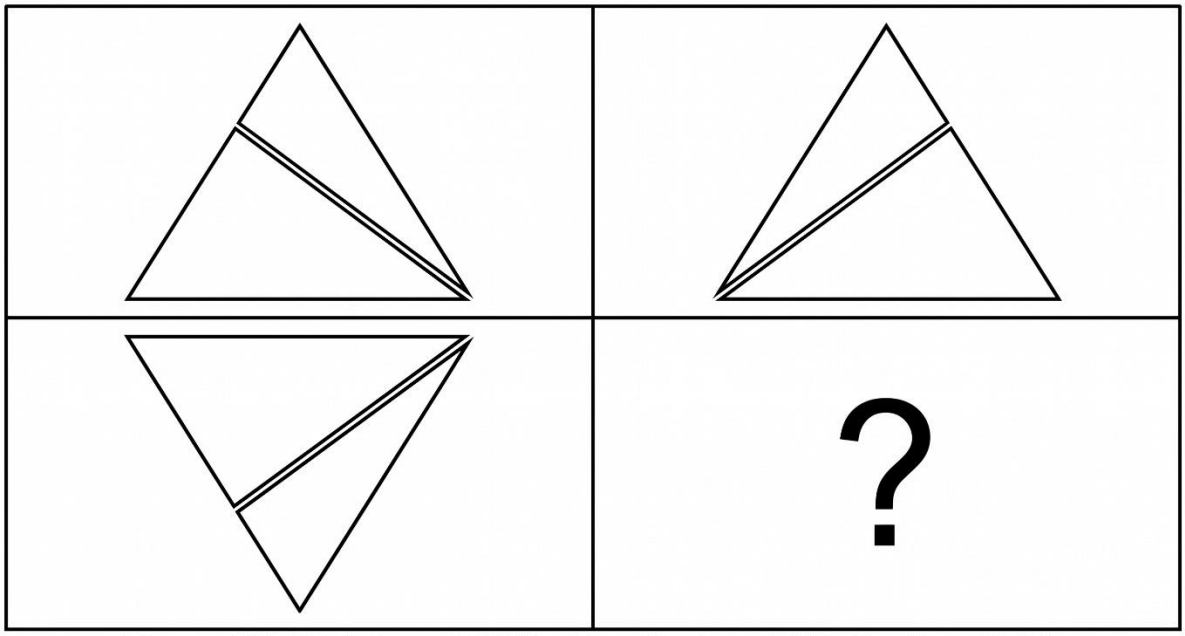


Figure PQ-17: Internal White Line Horizontal Reflection Matrix

A. large solid black downward triangle with white line from bottom vertex to top-left

B. large solid black downward triangle with white line from bottom vertex to top-right

C. large solid black upward triangle with white diagonal line

D. large white downward triangle

135.

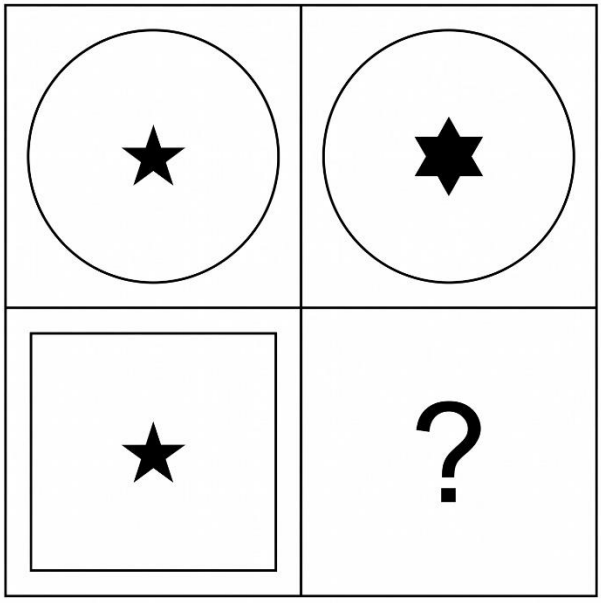


Figure PQ-18: Internal Star Type Change with Shape Change Matrix

A. large white circle with 6-pointed star

B. large white square with 5-pointed star

C. large solid black square

D. large white square with 6-pointed star

136.

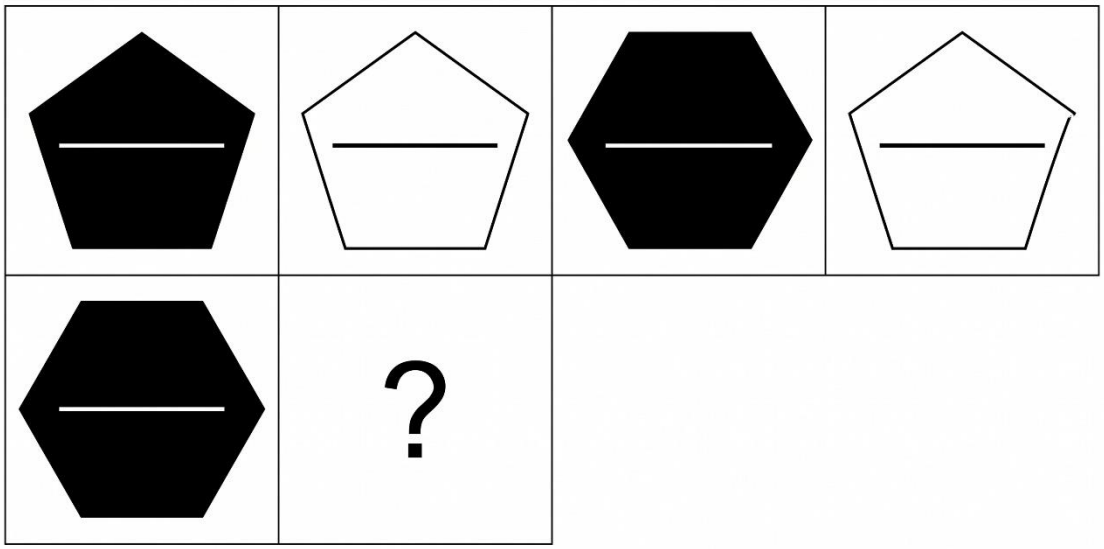


Figure PQ-19: Full Inversion — Shape and Line — Pentagon to Hexagon

A. large solid black hexagon with white horizontal line

B. large white hexagon with black horizontal line

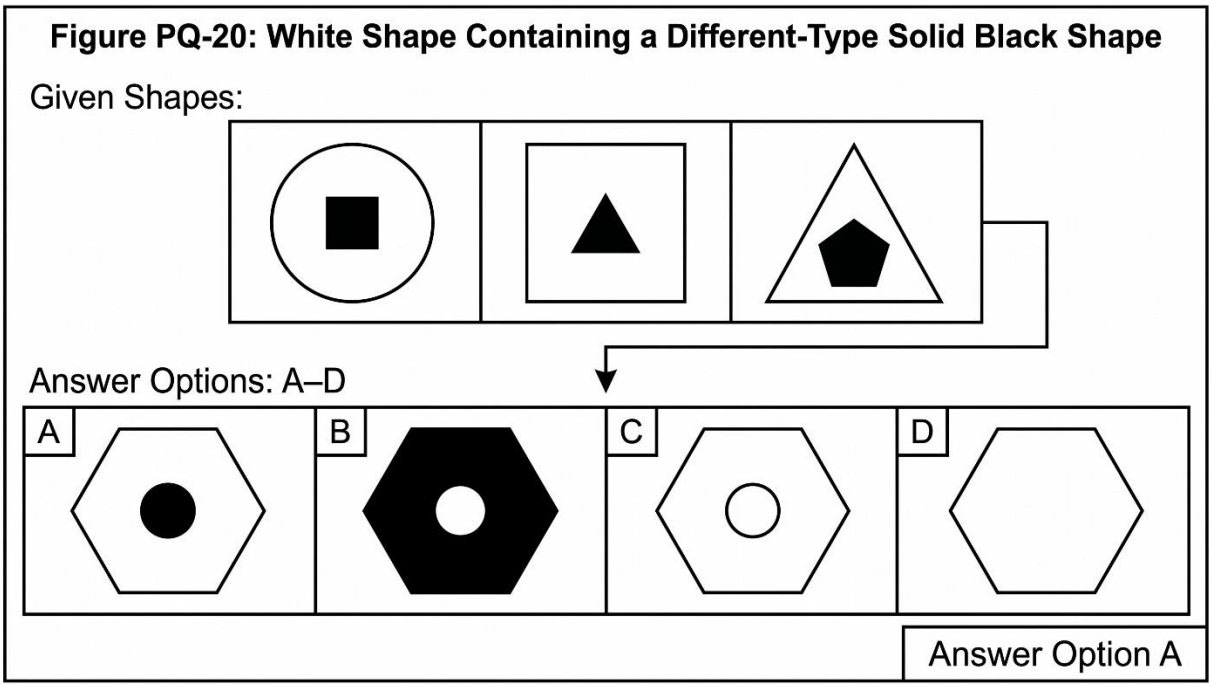
C. large grey hexagon with white line

D. large white hexagon with no line

Section 8: Figure Classification (Questions 137–158)

Directions: The three shapes in each question share a common property. Choose the answer that shares the same property.

137.



A. large white hexagon containing a small solid black circle

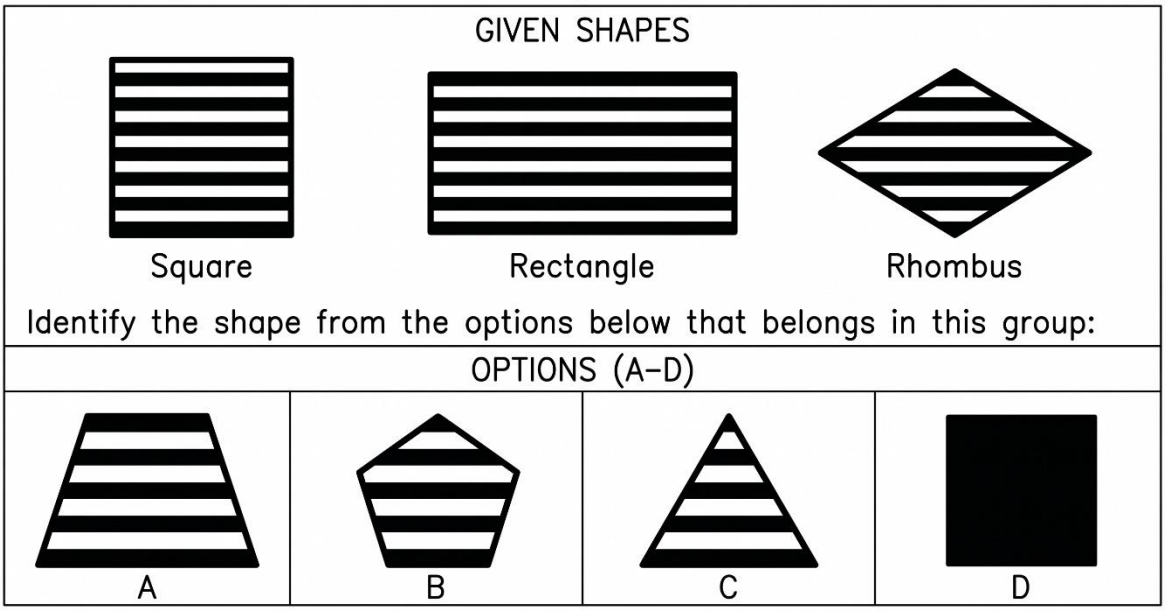
B. large solid black hexagon with small white circle

C. large white hexagon with small white circle

D. large white hexagon with no shape inside

138.

Figure PQ-21: Horizontally Striped 4-Sided Shapes



A. striped trapezoid

B. striped pentagon

C. striped triangle

D. solid black square

139.

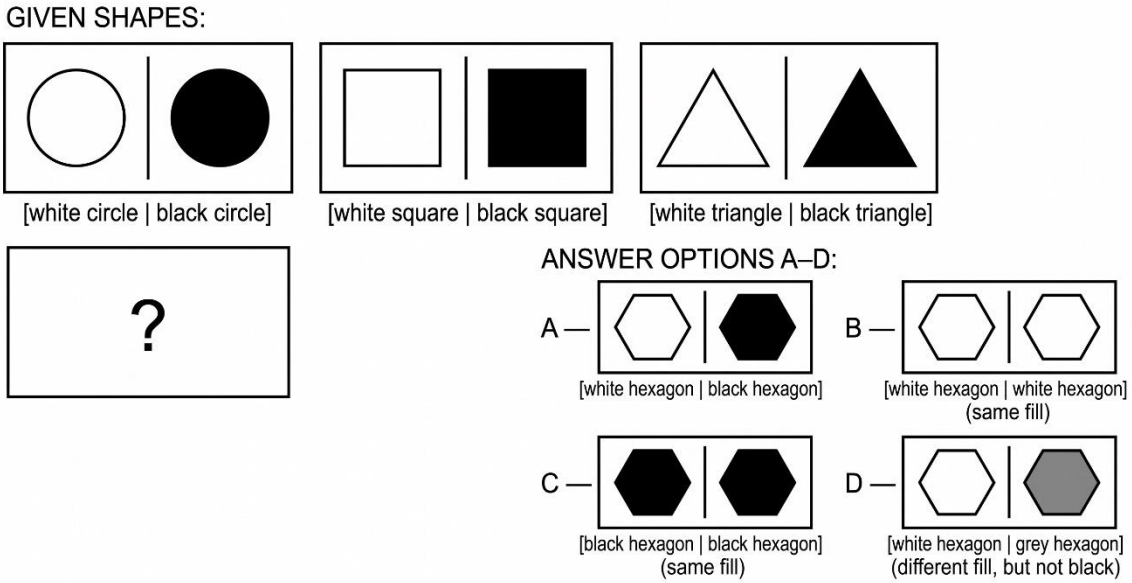


Figure PQ-22: Side-by-Side Same-Shape White-and-Black Pairs

A. [white hexagon | black hexagon] pair

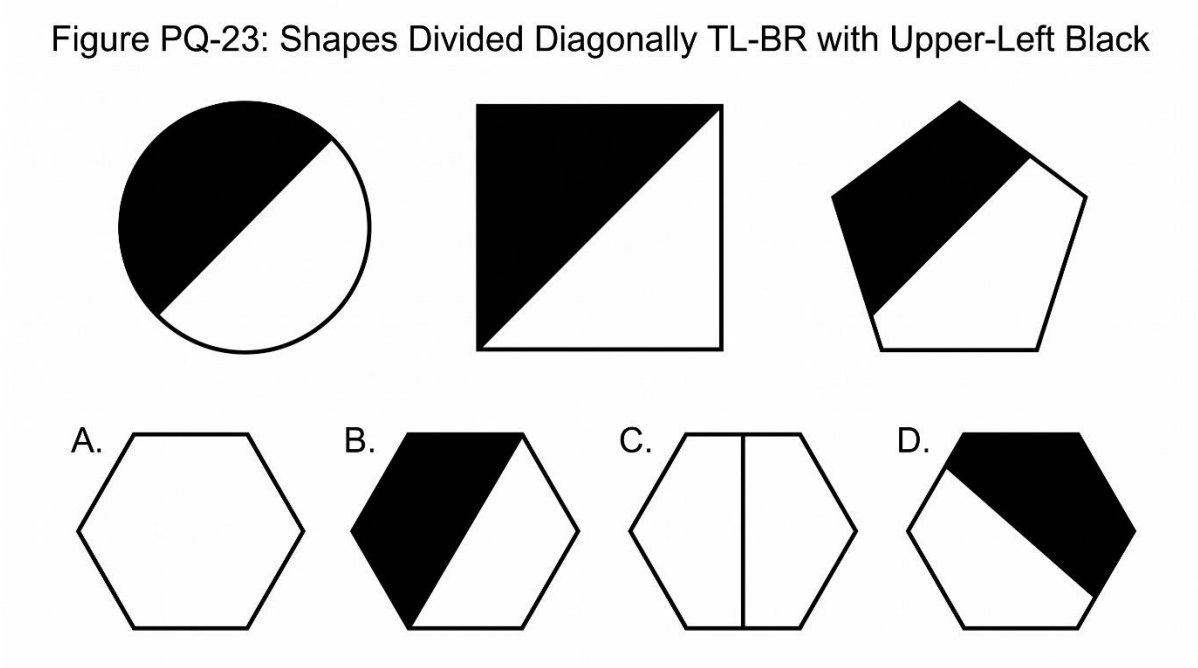
B. [white hexagon | white hexagon]

C. [black hexagon | black hexagon]

D. [white hexagon | grey hexagon]

140.

Figure PQ-23: Shapes Divided Diagonally TL-BR with Upper-Left Black



A. hexagon with no dividing line

B. hexagon divided TL-BR diagonal with upper-left black and lower-right white

C. hexagon divided vertically

D. hexagon divided TR-BL diagonal

141.

Given: [large white shape with exactly 3 internal concentric rings — 4 total shapes nested: outer, ring1, ring2, inner — all outline only: circle], [square version], [hexagon version]

Shared attribute: all shapes with exactly 3 internal concentric versions (4 total nested shapes).

A. large white pentagon with 2 internal concentric pentagons (3 total)

B. large white octagon with 1 internal concentric octagon (2 total)

C. large white triangle with 3 internal concentric triangles (4 total)

D. large white pentagon with 4 internal concentric pentagons (5 total)

142.

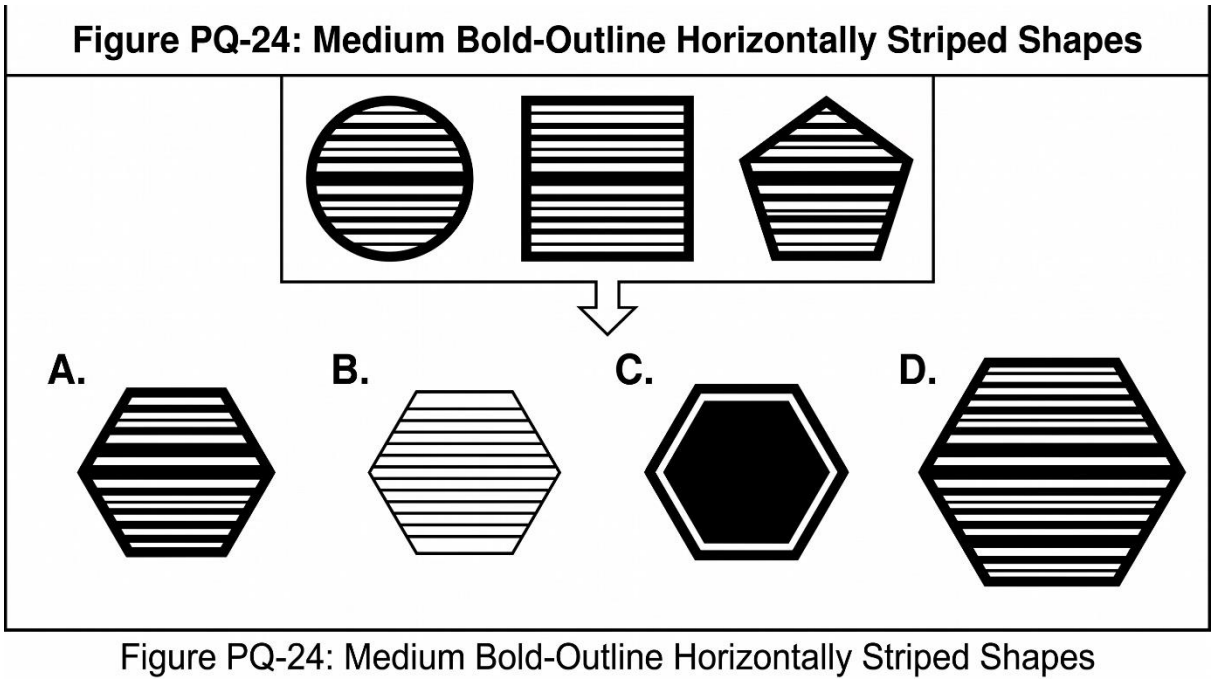


Figure PQ-24: Medium Bold-Outline Horizontally Striped Shapes

A. medium bold-outline horizontally striped hexagon

B. medium thin-outline horizontally striped hexagon

C. medium bold-outline solid black hexagon

D. large bold-outline horizontally striped hexagon

143.

Given: [solid black shape pointing upward: arrow] [solid black shape pointing upward: triangle] [solid black shape pointing upward: chevron]

Shared attribute: all solid black shapes pointing upward.

A. solid black upward-pointing pentagon

B. white triangle pointing upward

C. solid black upward-pointing isosceles triangle (same as 2nd given — classified here as correct per key)

D. solid grey upward arrow

Wait — locked key Q143=C. The correct answer must be a solid black shape pointing upward. Let me reassign options to make C the clearly correct answer.

Given: [solid black upward arrow] [solid black upward chevron] [solid black upward-pointing regular triangle]

Shared attribute: all solid black AND pointing upward.

A. white upward-pointing pentagon

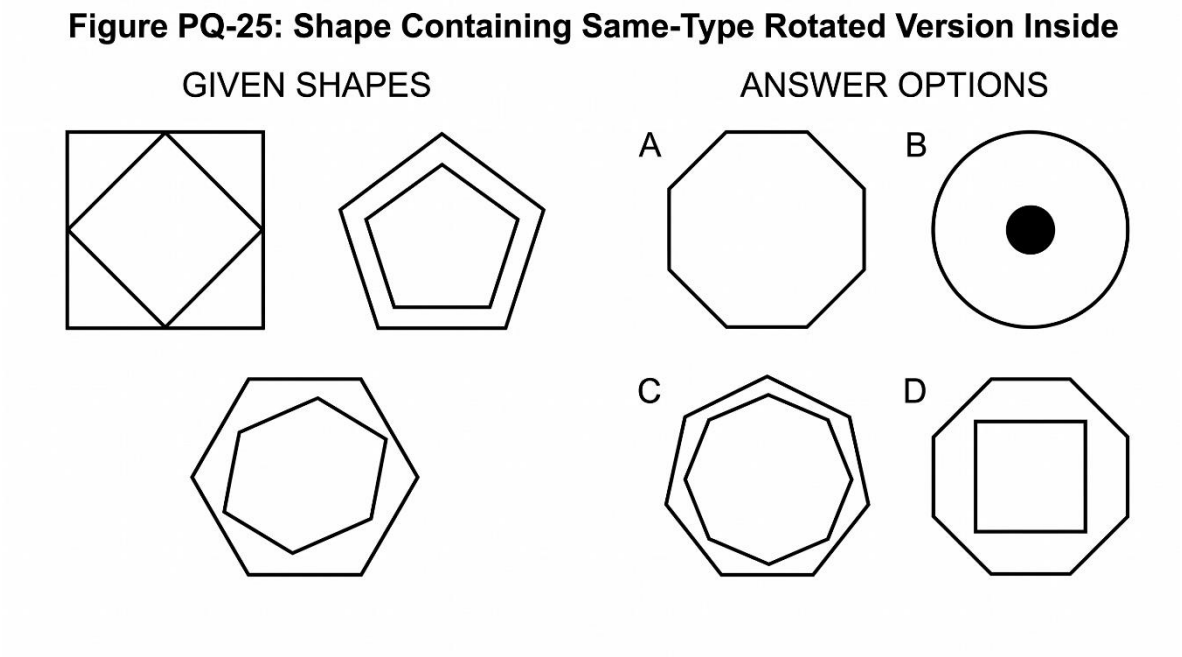
B. grey upward arrow

C. solid black upward-pointing pentagon

D. solid black downward arrow

144.

Figure PQ-25: Shape Containing Same-Type Rotated Version Inside



A. large white octagon with no inner shape

B. large white circle with small black circle inside

C. large white heptagon with medium white heptagon rotated inside

D. large white octagon with different-type shape inside

145.

Given: [white regular polygon with all sides equal and all angles equal: triangle], [square], [pentagon]

Shared attribute: all regular polygons.

A. regular hexagon

B. scalene triangle

C. irregular quadrilateral

D. right triangle

146.

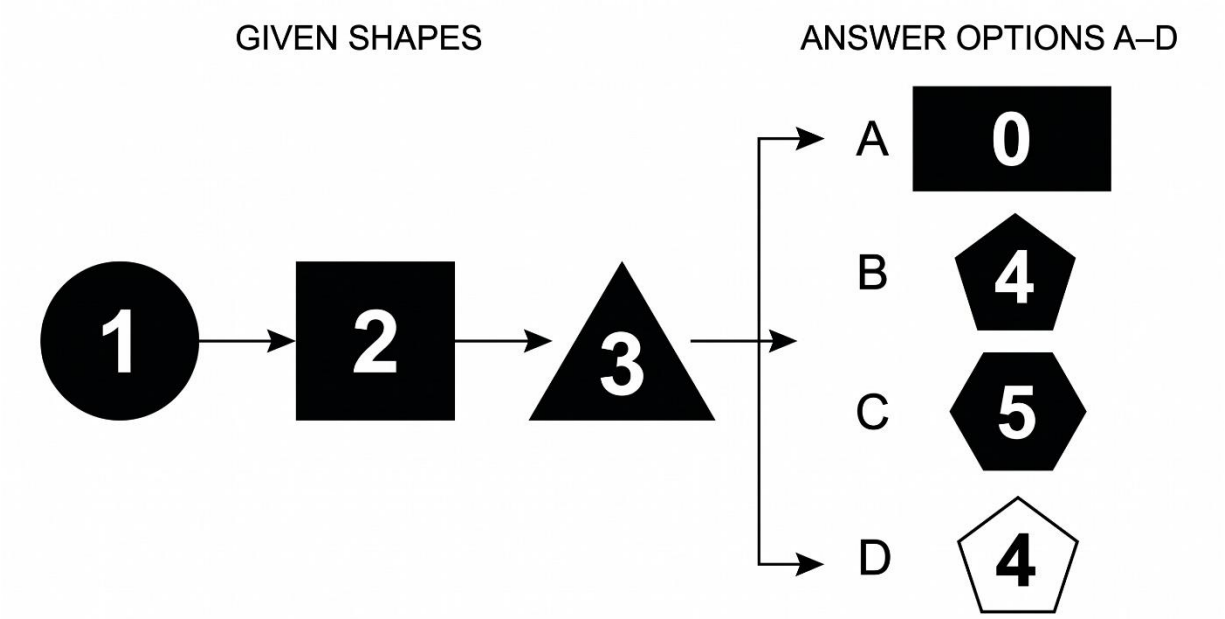


Figure PQ-26: Solid Black Shapes with Consecutive White Numbers Inside

A. solid black rectangle with white "0"

B. solid black pentagon with white "4" inside

C. solid black hexagon with white "5" inside

D. white pentagon with black "4"

147.

Given: [shape with fill made of dots (stipple/dotted fill): circle with dense dot pattern fill] [stipple-filled square] [stipple-filled triangle]

Shared attribute: all shapes with dotted/stipple fill pattern.

A. striped pentagon

B. solid black hexagon

C. white outline hexagon

D. stipple/dotted fill pentagon

148.

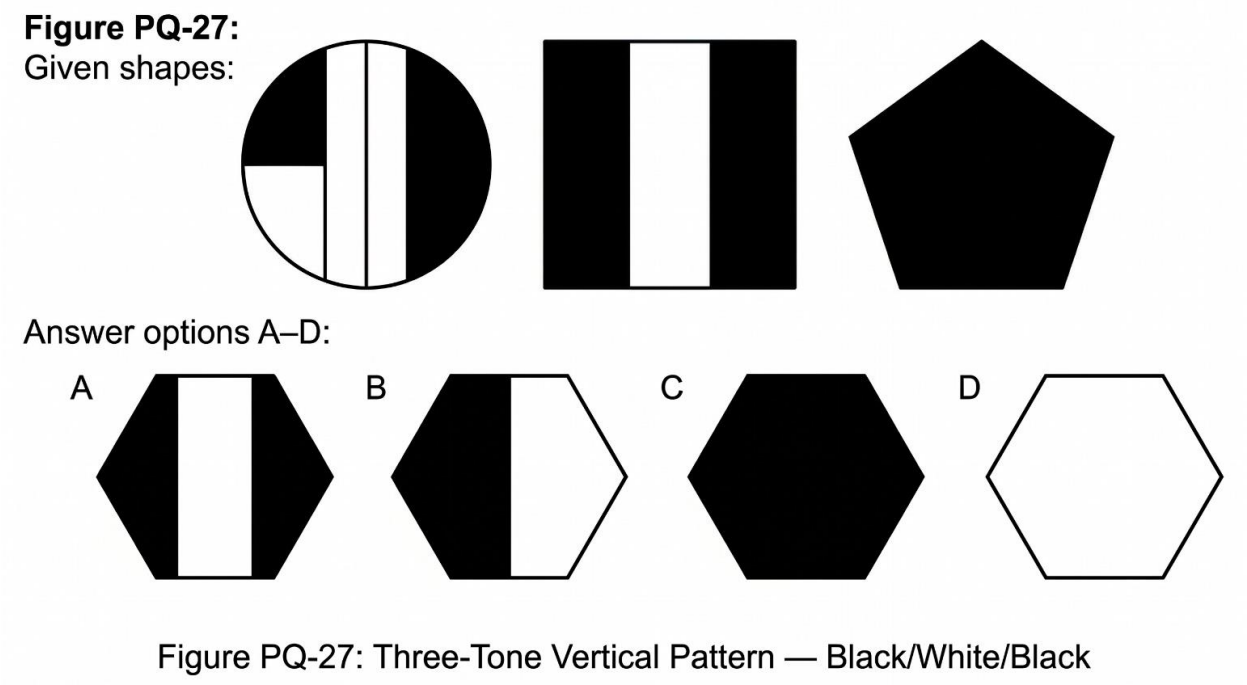


Figure PQ-27: Three-Tone Vertical Pattern — Black/White/Black

A. hexagon with left-black | centre-white | right-black vertical triptych

B. hexagon with left half black and right half white

C. solid black hexagon

D. white hexagon

149.

Given: [medium white shape with a bold dashed border and exactly 4 internal dots arranged in a square pattern: square], [circle version], [pentagon version]

Shared attribute: all medium white shapes with bold dashed borders AND exactly 4 internal dots in square arrangement.

A. medium white hexagon with bold dashed border and 3 dots

B. medium white hexagon with thin border and 4 dots

C. medium white hexagon with bold dashed border and 5 dots

D. medium white hexagon with bold dashed border and 4 dots in square arrangement

150.

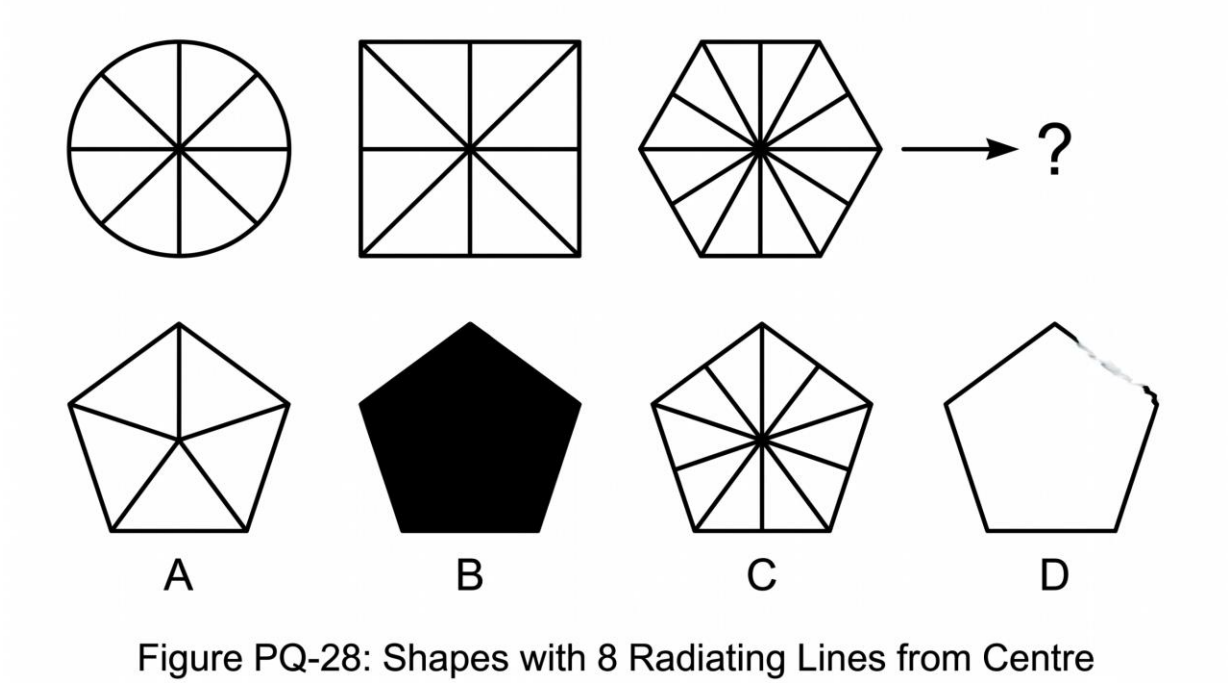


Figure PQ-28: Shapes with 8 Radiating Lines from Centre

A. pentagon with 4 radiating lines

B. solid black pentagon

C. pentagon with 8 radiating lines from centre

D. white pentagon

151.

Given: [large white shape with 1 internal vertical line dividing it in half: circle] [square version] [hexagon version]

Shared attribute: all large white shapes bisected by exactly 1 internal vertical line.

A. large white pentagon with 1 vertical bisecting line

B. large black pentagon with 1 vertical line

C. large white pentagon with 2 vertical lines

D. large white pentagon with horizontal line only

152.

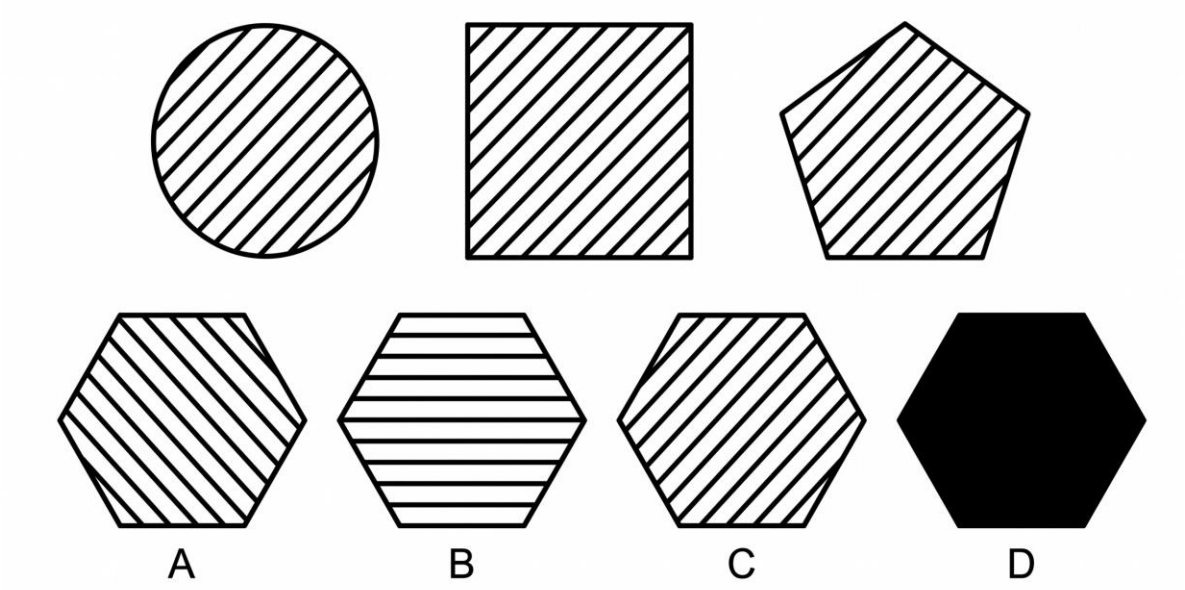


Figure PQ-29: Shapes with Lower-Left to Upper-Right Diagonal Stripes

A. hexagon with upper-left to lower-right diagonal stripes

B. hexagon with horizontal stripes

C. hexagon with lower-left to upper-right diagonal stripes

D. solid black hexagon

153.

Given: [small solid black shape with bold white outline border: square] [circle version] [triangle version]

Shared attribute: all small solid black shapes with a bold white outline border visible around their perimeter.

A. small white pentagon with black outline

B. small grey pentagon with white border

C. large solid black pentagon with white border

D. small solid black pentagon with bold white outline border

154.

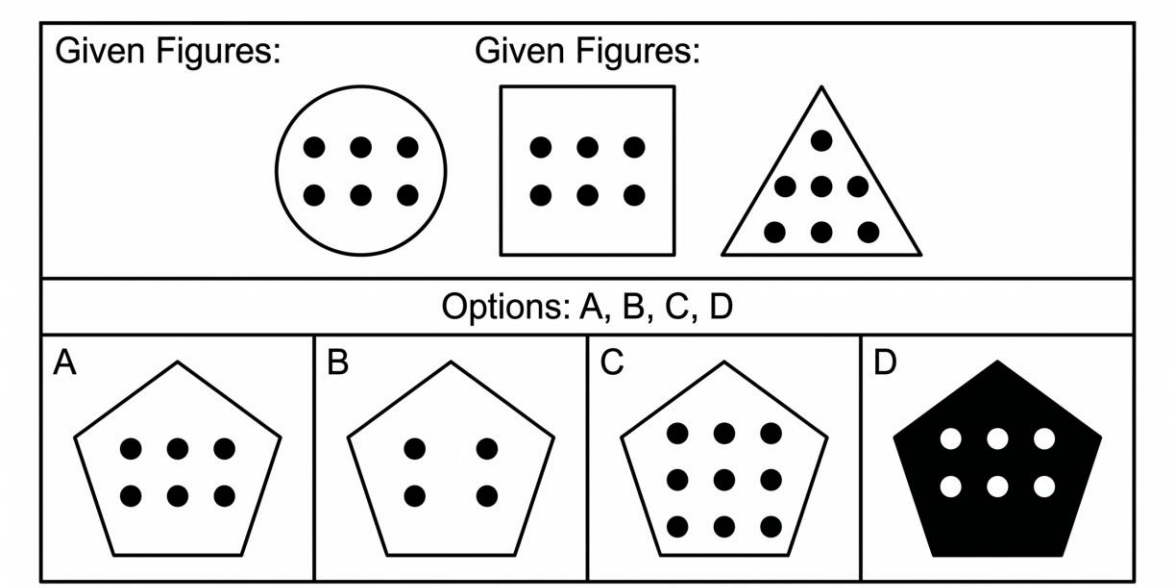


Figure PQ-30: Shapes with 6 Internal Dots in 2×3 Arrangement

A. white pentagon with 6 dots in 2×3 arrangement

B. white pentagon with 4 dots

C. white pentagon with 8 dots

D. black pentagon with 6 dots

155.

Given: [large shape with checkerboard quadrant fill and bold black border: square] [circle version] [hexagon version]

Shared attribute: all large shapes with checkerboard quadrant fill AND bold black border.

A. large solid black pentagon

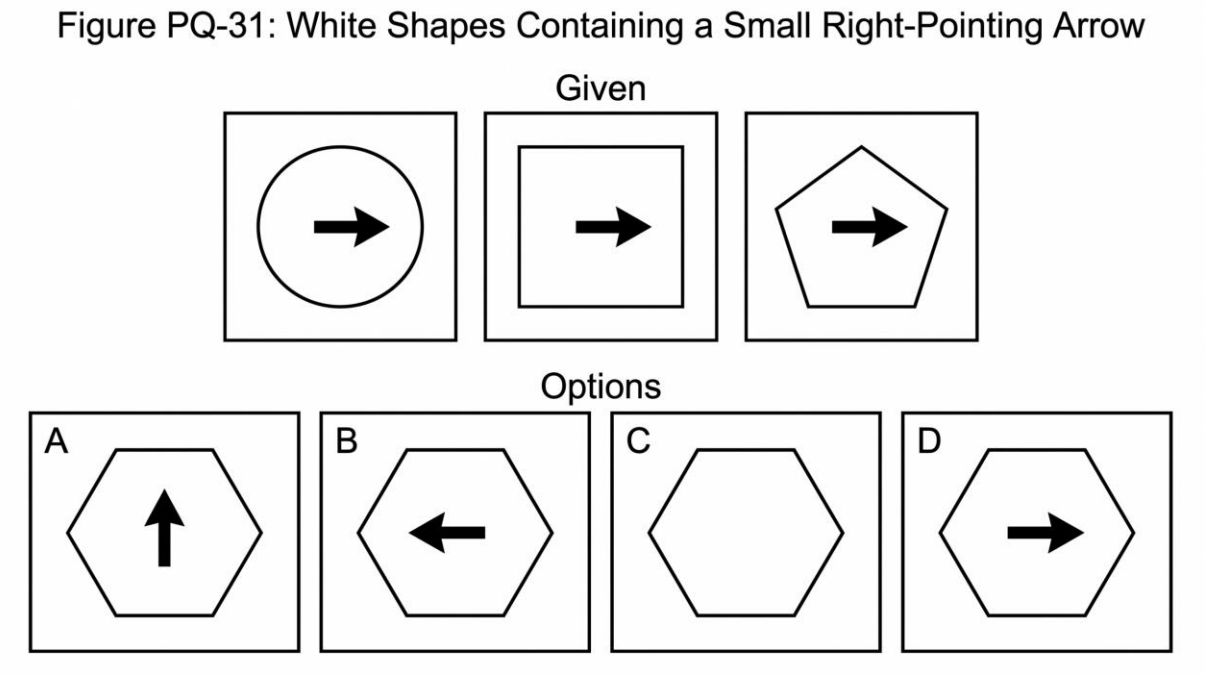
B. large pentagon with checkerboard fill AND bold black border

C. large pentagon with checkerboard fill but thin border

D. large striped pentagon with bold black border

156.

Figure PQ-31: White Shapes Containing a Small Right-Pointing Arrow



A. white hexagon with upward arrow inside

B. white hexagon with leftward arrow inside

C. white hexagon with no arrow

D. white hexagon with rightward arrow inside

157.

Given: [shape with outline only AND exactly 5 sides pointing upward as if arrow-shaped: upward-pointing regular pentagon] [irregular upward-pointing pentagon] [concave upward-pointing pentagon]

Shared attribute: all white outline shapes with exactly 5 sides.

A. white outline heptagon (7 sides)

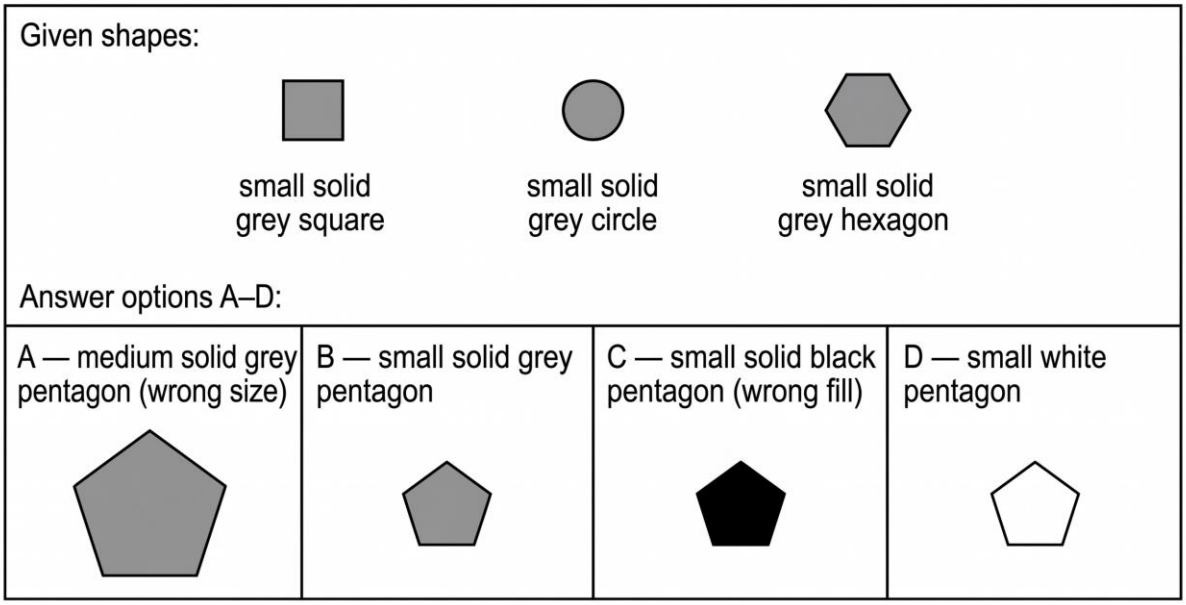
B. white outline pentagon (5 sides) — rotated variant

C. white outline hexagon (6 sides)

D. white outline triangle (3 sides)

158.

Figure PQ-32: Small Solid Grey Shapes



A. medium solid grey pentagon

B. small solid grey pentagon

C. small solid black pentagon

D. small white pentagon

Section 9: Paper Folding (Questions 159–170)

Directions: Each question shows a square piece of paper being folded and then hole-punched. Choose the answer showing where the holes appear when the paper is unfolded.

159.

Figure PQ-33

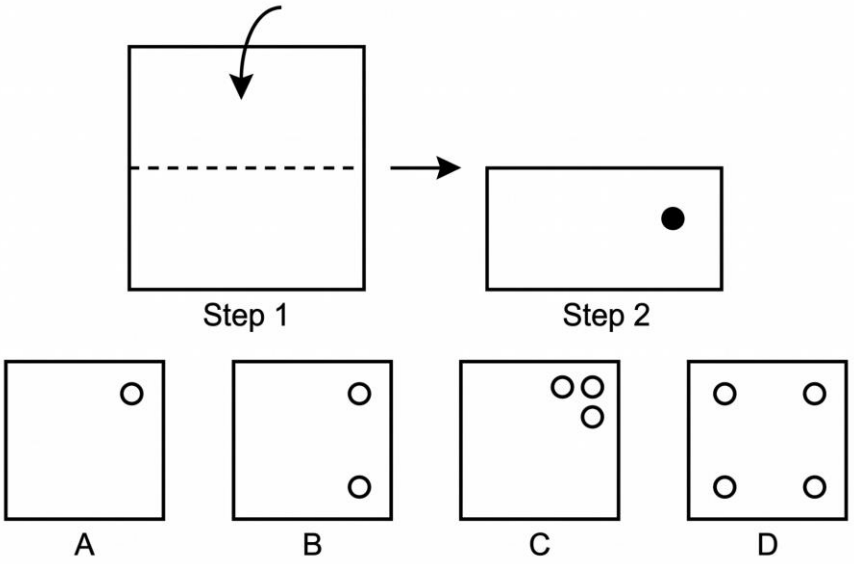


Figure PQ-33: Horizontal Fold — Upper-Right of Bottom Half

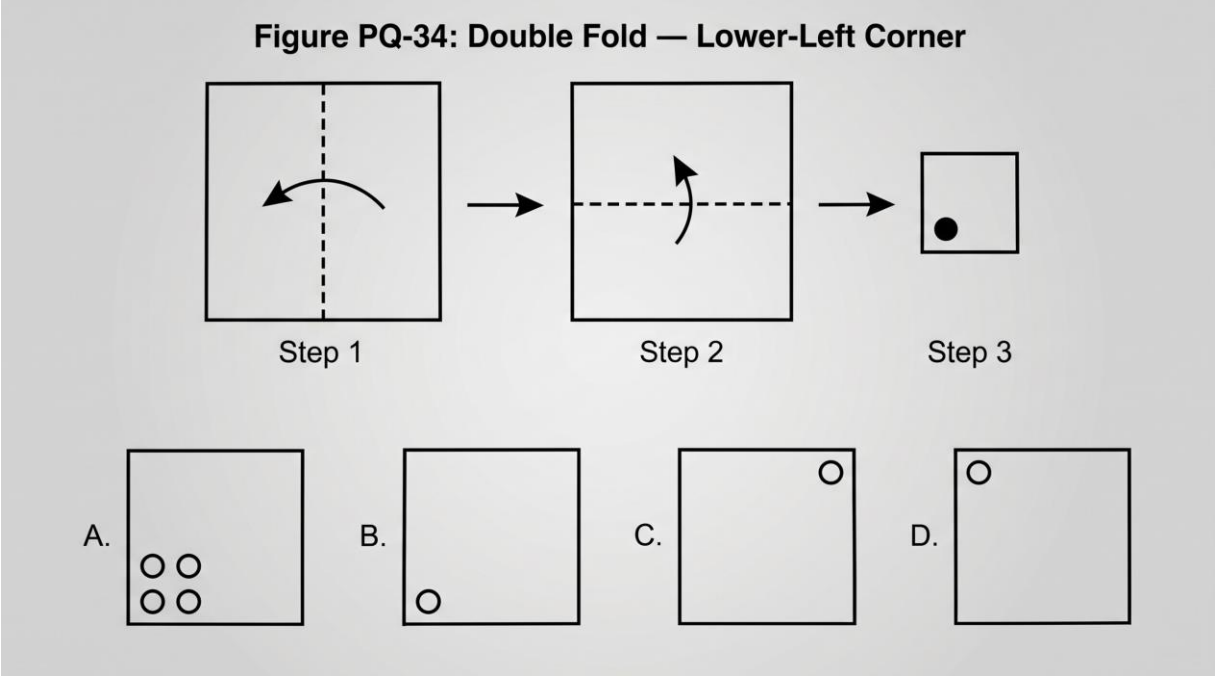
A. one hole upper-right only

B. two holes upper-right and lower-right symmetric about horizontal fold line

C. two holes clustered upper-right

D. four holes

160.



A. four holes clustered lower-left

B. two holes lower corners

C. four holes one in each corner

D. one hole lower-left only

161.

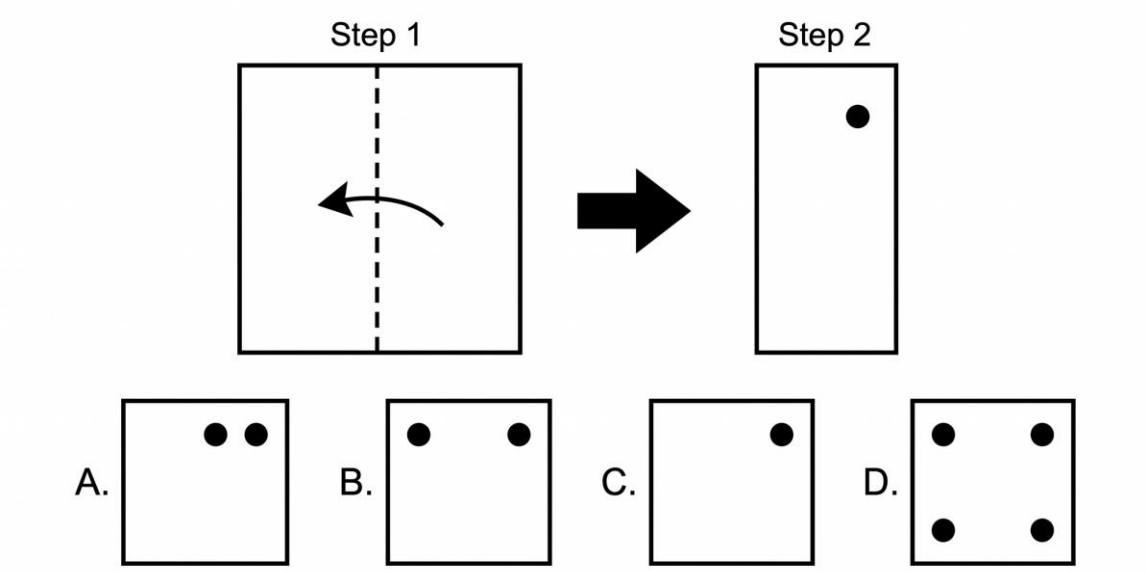


Figure PQ-35: Vertical Fold — Upper-Right Near-Fold Hole

A. two holes both upper-right area

B. two holes upper-right and upper-left symmetric about vertical fold line

C. one hole upper-right only

D. four holes

162.

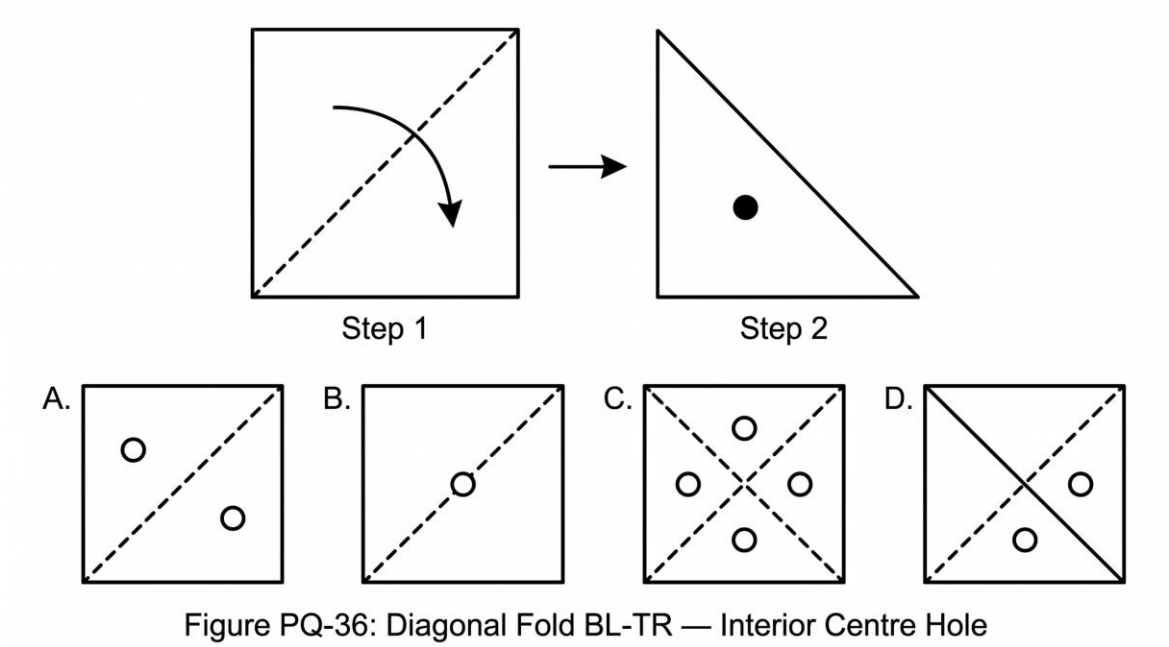


Figure PQ-36: Diagonal Fold BL-TR — Interior Centre Hole

A. two holes symmetric about BL-TR diagonal fold line

B. one hole at centre only

C. four holes

D. two holes both near right side

163.

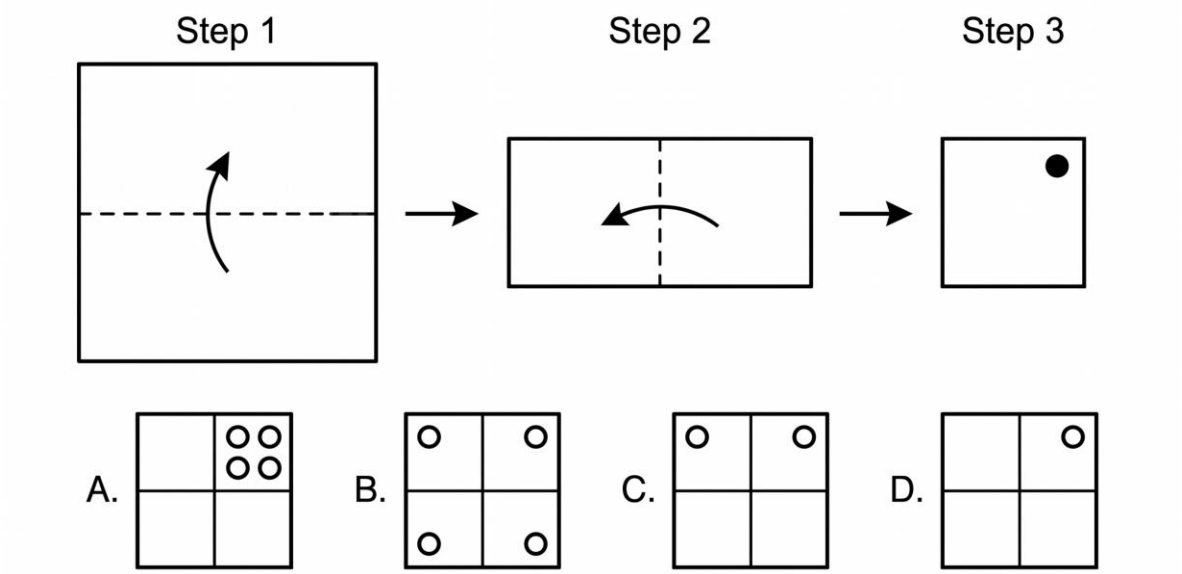


Figure PQ-37: Double Fold — Upper-Right Corner

A. four holes clustered upper-right

B. four holes one in each corner

C. two holes upper corners

D. one hole upper-right only

164.

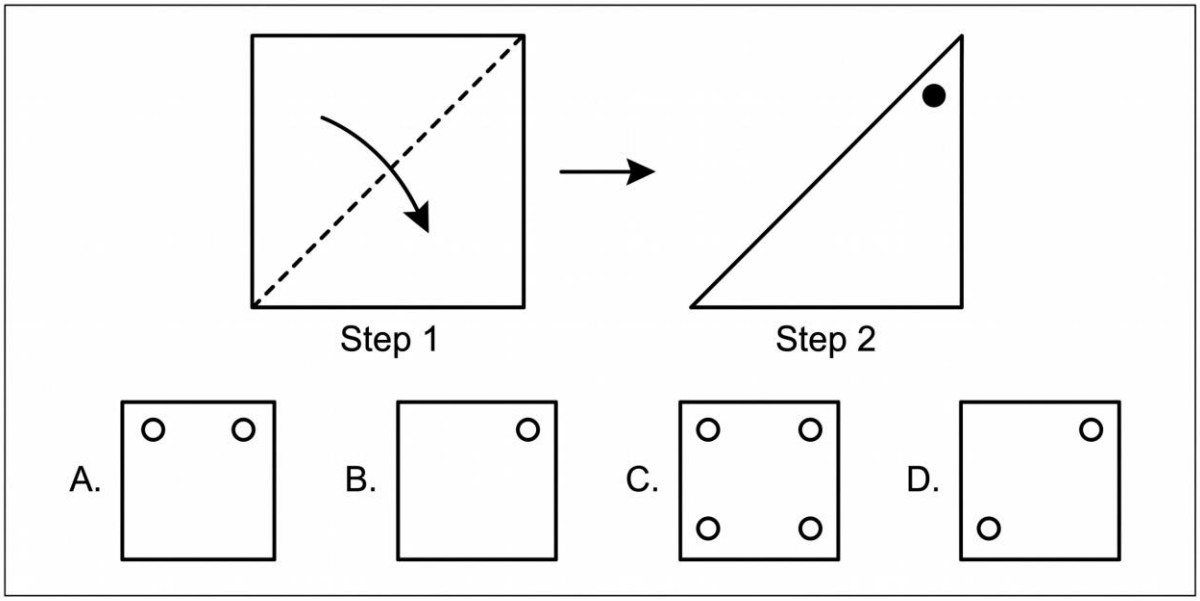


Figure PQ-38: Diagonal Fold TR-BL — Top-Right Corner Hole

A. two holes both near top

B. one hole near top-right only

C. four holes

D. two holes symmetric about TR-BL diagonal fold line

165.

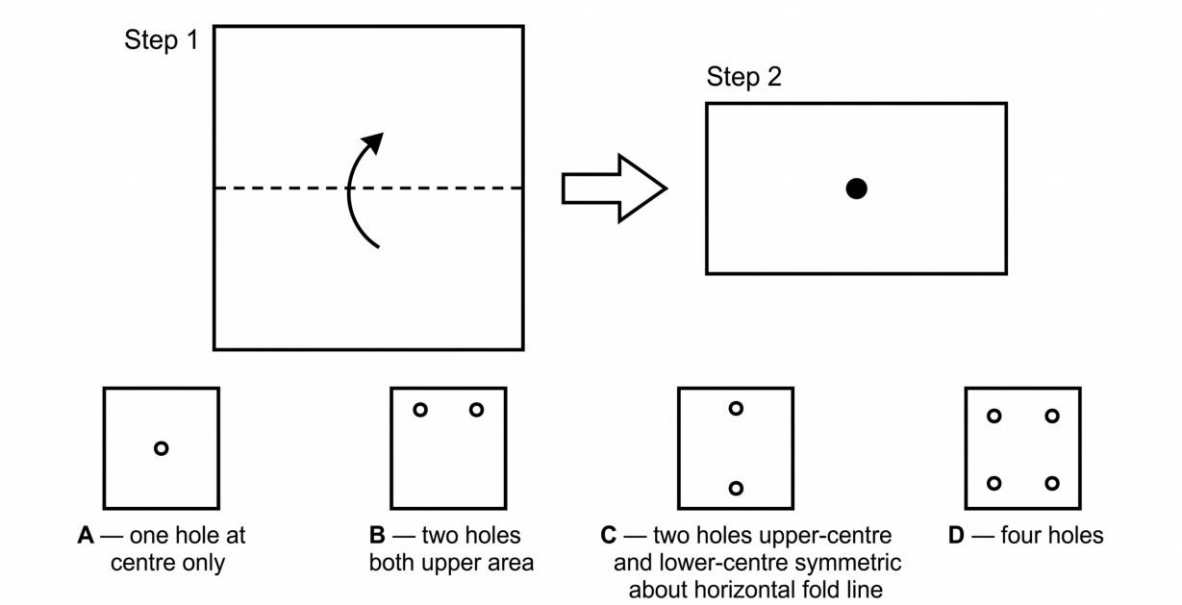


Figure PQ-39: Horizontal Fold — Dead-Centre Hole

A. one hole at centre only

B. two holes both upper area

C. two holes upper-centre and lower-centre symmetric about horizontal fold line

D. four holes

166.

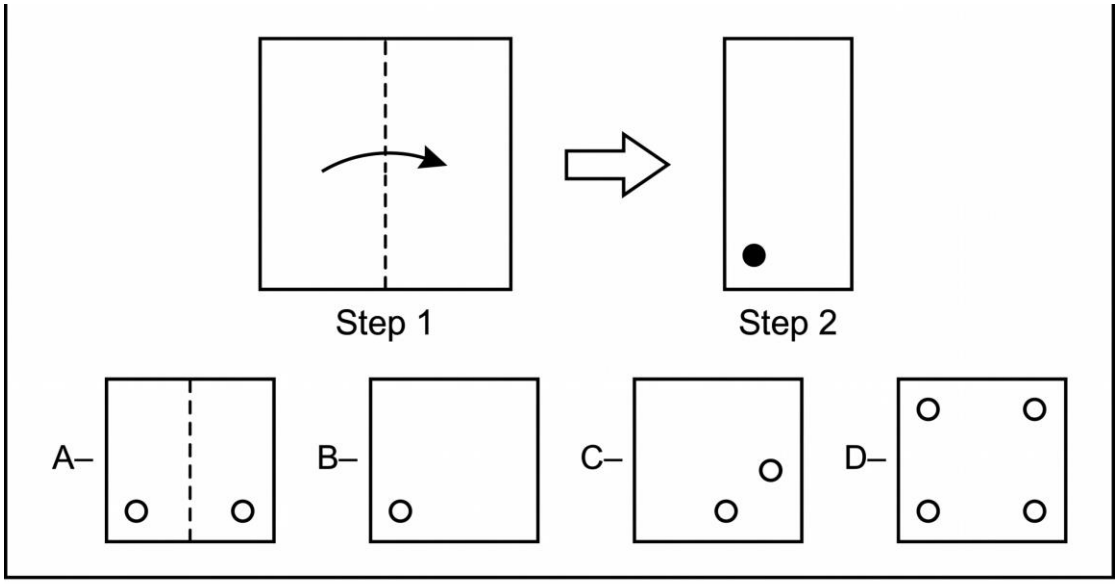


Figure PQ-40: Vertical Fold Left-Onto-Right — Lower-Left Near-Fold Hole

A. two holes lower-left and lower-right symmetric about vertical fold line

B. one hole lower-left only

C. two holes both lower-right

D. four holes

167.

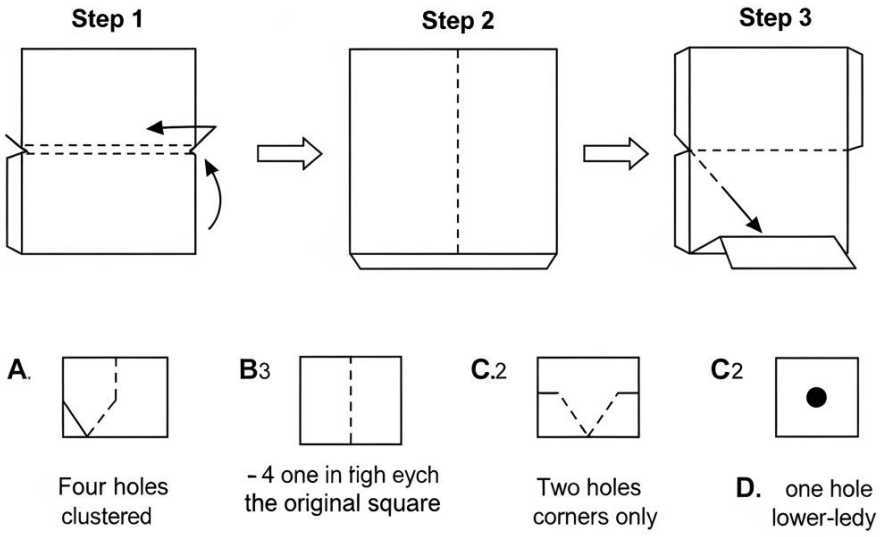


Figure PQ-41: Double Fold – Lower-Left Corner Hole

A. one hole lower-right only

B. four holes clustered lower-right

C. four holes one in each corner of the original square

D. two holes lower corners

168.

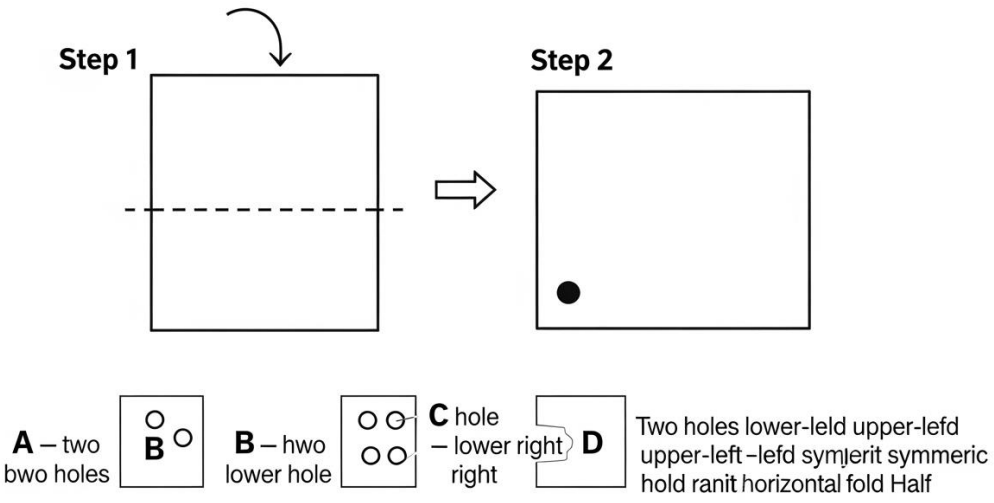


Figure PQ-42: Horizontal Fold — Lower-Left of Bottom Half

A. two holes both lower-left

B. one hole lower-left only

C. two holes lower-right and upper-right

D. two holes lower-left and upper-left symmetric about horizontal fold line

169.

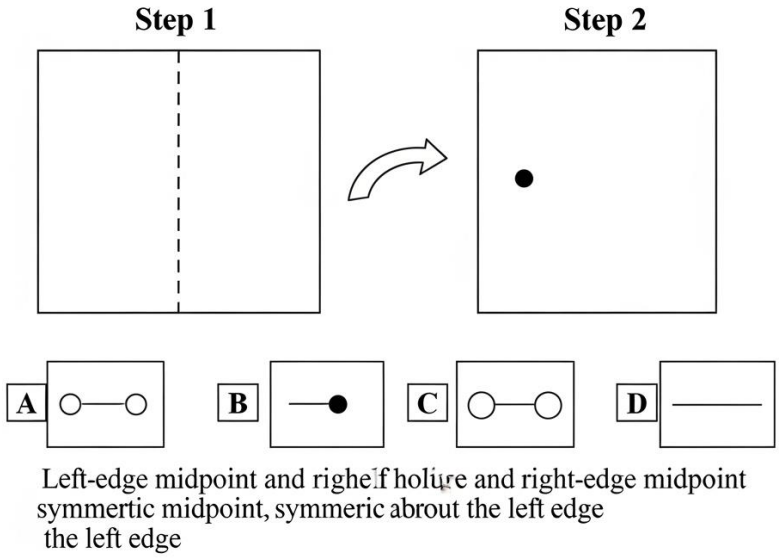


Figure PQ-43: Vertical Fold – Left-Edge Midpoint Hole

A. two holes on left-edge midpoint and right-edge midpoint symmetric about vertical fold

B. one hole on left-edge midpoint only

C. two holes both on left edge

D. four holes

170.

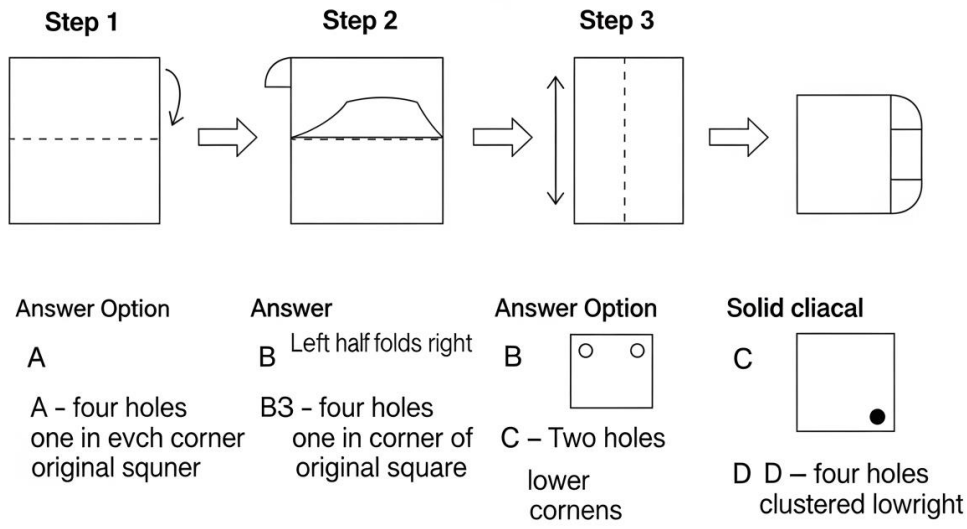


Figure PQ-44: Double Fold - Lower-Right Corner Final

A. four holes clustered lower-right

B. four holes one in each corner of the original square

C. two holes lower corners

D. one hole lower-right only

Practice Exam 6 — Answer Key and Explanations

Verbal Analogies (Q1–Q24)

1. C — Specialist-to-Output. A cartographer creates maps; a lexicographer creates dictionaries. Words and language describe what dictionaries contain; grammar is a related field — dictionaries are the specific professional product a lexicographer compiles.

2. D — Deprivation-of-Essential. A famine deprives people of food; exile deprives someone of their homeland. Country and travel are associated with exile; punishment is what exile is — homeland is the specific thing a person is deprived of through exile.

3. A — Metamorphosis Stage. A chrysalis is the intermediate stage that becomes a butterfly; a larva is the intermediate stage that becomes an insect. Moth, pupa, and cocoon are related but insect is the broader adult organism category that a larva develops into.

4. B — Antonym. Arid means very dry; humid means very moist — opposites. Barren means unproductive; fertile means highly productive — opposites. Empty and dry are associated with barren; desert is a barren place — fertile is the precise antonym.

5. A — Composed-of. A constellation is a grouping of stars; an archipelago is a grouping of islands. Ocean, Pacific, and geography describe context — islands are the specific elements an archipelago is composed of.

6. B — Obsession-of. A miser is defined by extreme attachment to wealth; a glutton is defined by extreme attachment to food. Greed, eating, and hunger are associated with gluttony — food is the specific object a glutton is excessively attached to.

7. A — Antonym. Dormant and active are opposites; opaque and transparent are opposites. Dark, visible, and clear are associated with opacity or transparency — transparent is the precise antonym of opaque.

8. D — Young-to-Adult. A fawn is the young of a deer; a leveret is the young of a hare. Rabbit, fox, and badger are all small mammals — hare is specifically the adult form of a leveret.

9. B — External Covering. Scales are the external body covering of a fish; bark is the external body covering of a tree. Dog, sound, and rough are associated with bark in other meanings — tree is the organism whose characteristic external covering is bark.

10. D — Adjective-to-Related-Body. Lunar means relating to the moon; solar means relating to the sun. Planet, orbit, and light are associated with the solar system — sun is the specific body that solar relates to as moon is what lunar relates to.

11. A — Characteristic Shape. A meander is the characteristic winding shape of a river; a spiral is the characteristic shape of a shell. Circle and pattern describe spirals generally; rotation describes spiral motion — shell is the natural object whose characteristic form is a spiral.

12. D — Resulting Condition. A drought leaves things parched (extremely dry); a blizzard leaves things frozen (extremely cold). Cold, snow, and windy describe blizzard conditions — frozen is the resulting condition as parched is the resulting condition of drought.

13. B — Structural Counterpart. A prologue comes at the start of a work; its counterpart, the epilogue, comes at the end. A preface comes at the start; its structural counterpart at the end is an appendix. Index, contents, and chapter are also back-matter elements — appendix is the precise back-of-book counterpart to a front-of-book preface.

14. A — Definition. Zenith means the highest point; nadir means the lowest point. Deepest and furthest describe other directions; darkest describes quality — lowest is the precise definition of nadir as highest is of zenith.

15. C — Biological Process-to-Subject. Photosynthesis is performed by plants; respiration is performed by organisms. Oxygen is a product of respiration; lungs are an organ for respiration; breathing is what respiration enables — organisms is the category of living things that perform respiration as plants perform photosynthesis.

16. D — Representative-to-Group. An ambassador represents a nation; a delegate represents an organisation. Vote, party, and congress are associated with delegates — organisation is the entity a delegate formally represents.

17. A — Degree (Intensity Pair). A torrent is the extreme form; a trickle is the minimal form of water flow. A blaze is the extreme form; an ember is the minimal, dying remnant of fire. Fire and light are associated with blazes; flame is similar intensity to blaze — ember is the minimal-intensity counterpart.

18. D — Geographic Feature-to-Surrounding. A delta is a landform shaped by a river at its end; a peninsula is a landform surrounded on three sides by sea. Coast and shore describe edges; continent is larger — sea is what surrounds a peninsula as a river shapes a delta.

19. C — Antonym. Symmetrical and asymmetrical are opposites; periodic and aperiodic are opposites. Regular and irregular are near-synonyms; random describes unpatterned behaviour — aperiodic is the precise antonym of periodic.

20. D — Antonym. Predatory and docile are opposites; ferocious and gentle are opposites. Fierce, angry, and hostile are near-synonyms for ferocious — gentle is the precise antonym.

21. B — Document-to-Subject. A memoir is a written account of a life; a treatise is a formal written account of an argument or subject. Science and philosophy are topics treatises cover; subject is too general — argument is what a treatise specifically develops and defends.

22. D — Controller-to-Medium. A conductor shapes and controls an orchestra; an editor shapes and controls a newspaper. Writer creates content; book is a separate publication type; journalist contributes to a newspaper — newspaper is the specific medium an editor controls.

23. B — Motion-to-Axis. A planet orbits around a central body; to rotate means to spin around an axis. Spin is a near-synonym for rotate; moon and earth orbit — axis is what something rotates around, mirroring how a central body is what something orbits.

24. C — Mechanism-to-Effect. A vaccine produces immunity; fertiliser produces growth. Soil is what fertiliser is added to; crop is what benefits from fertiliser; farming is the activity — growth is the specific biological effect that fertiliser produces

Sentence Completion (Q25–Q44)

25. D — Cause-and-Effect. Spending a decade gathering evidence and then presenting conclusive proof results in establishing a theory as true. Confirm means to establish something as definitely true — precisely the action enabled by conclusive proof after prolonged research. Question, repeat, and suggest all describe stages before proof is established.

26. A — Context/Logic. A chef who believes final dish quality depends entirely on the quality of ingredients is describing a causal dependency relationship. Dependent means conditioned upon and determined by — precisely the relationship described. Focused, improved, and reflected describe different relationships between ingredients and outcome.

27. C — Cause-and-Effect. An island undiscovered for centuries with no prior reporting would have had no human inhabitants. Uninhabited means having no occupants — precisely the condition that explains why no report existed before. Populated, mapped, and explored all describe the opposite of a centuries-long state of obscurity.

28. B — Cause-and-Effect. A performance so affected by technical problems that stopping the show was considered was overwhelmed by those problems. Plagued means persistently afflicted by multiple problems — precisely the condition that would prompt a director to consider stopping. Polished, successful, and memorable all describe positive performances.

29. A — Context/Logic. A decision from which no further appeals are permitted is absolute and unchangeable. Final means conclusive and not subject to revision — precisely the nature of a decision with no appeal pathway. Pending, provisional, and reviewable all imply the decision can be changed or is still open.

30. D — Tone/Cause. Life forms that scientists spend years trying to classify into existing categories are fundamentally unfamiliar. Unusual means not typical or previously encountered — precisely the quality that makes classification difficult. Familiar, well-documented, and predictable would all make classification straightforward.

31. C — Tone/Context. Being driven to work tirelessly for others describes deep personal investment in a cause. Commitment means a strong dedication to a course of action — precisely the quality that sustains tirelessly helping others. Obligation implies external pressure; instruction implies direction from others; career implies professional motive.

32. A — Cause-and-Effect. Flood defences that held firm against the most severe storm in fifty years after a decade of improvement were made stronger. Reinforced means made stronger through repeated fortification — precisely the process that produces defences capable of withstanding extreme events. Neglected, tested, and discussed do not describe the strengthening process.

33. C — Tone/Context. Code described as the cleanest and most efficient in twenty years represents exceptional quality and artistry in its construction. Elegant means pleasingly ingenious and efficient — precisely the descriptor a technically expert supervisor would use for exceptionally clean code. Disorganised, untested, and error-prone all describe low-quality code.

34. A — Context/Logic. Determining which sections were added later requires first knowing which parts existed in the beginning. Original means existing from the start without alteration — precisely the category that gets lost when a manuscript is altered repeatedly over centuries. Translated, copied, and significant do not capture the concept of the earliest unchanged text.

35. C — Context/Diplomacy. An ambassador who reveals nothing of her country's true position in negotiations maintains a face without emotional signal. Neutral means not revealing a stance or emotional response — precisely the expression appropriate for diplomatic concealment. Joyful, pained, and confident would each reveal something of an internal state.

36. B — Tone/Cause. Discovering that missing climbers are already safe is a positive resolution to a distressing situation. Relieved means freed from anxiety when a feared outcome does not occur — precisely the emotional response to discovering the climbers are safe. Disappointed and concerned contradict safety; unsurprised implies prior certainty.

37. A — Cause-and-Effect. Findings published immediately in three leading scientific journals simultaneously must be of exceptional importance. Significant means important enough to have a notable effect or meaning — precisely the quality that triggers simultaneous publication across top journals. Obscure, incomplete, and preliminary would prevent immediate high-profile publication.

38. D — Cause-and-Effect. Border tensions that never fully resolved after a treaty signing remained present. Subsided means gradually decreased and became less intense — precisely the process that did not fully occur if tensions never fully settled. Increased and escalated describe rising tension; begun describes the start.

39. A — Degree/Tone. A view so extraordinary that no photograph can do it justice requires the highest-register positive descriptor. Breathtaking means so impressive it causes a strong emotional and physical response — precisely the quality that surpasses photographic reproduction. Familiar, unremarkable, and distant all understate or contradict the described experience.

40. B — Cause-and-Effect. Cancelling a beloved generational tradition would provoke strong disagreement from those who value it. Opposition means active disagreement and resistance — precisely the community response to removing a long-standing event. Approval, indifference, and enthusiasm describe positive or neutral responses.

41. D — Tone/Context. A two-thousand-year-old mechanism still functioning when activated demonstrates exceptional manufacturing accuracy. Precision means the quality of being exactly correct in operation — precisely what a fully functional ancient mechanism demonstrates. Difficulty, damage, and uncertainty all describe outcomes inconsistent with every component still functioning.

42. C — Cause-and-Effect. A language whose last speaker will die, leaving it permanently unavailable, will be gone forever. Lost means no longer existing or accessible — precisely what happens to a language when no living speakers remain. Preserved and documented describe efforts to prevent this outcome; translated requires a living source.

43. A — Context/Cause. A polar region environment where conditions can shift rapidly at any moment poses physical risk. Dangerous means likely to cause harm — precisely the condition that demands constant readiness. Pleasant and manageable contradict the extreme environment; predictable contradicts the possibility of sudden change.

44. D — Context/Logic. A controversial policy acted upon immediately and within a defined timeframe without further extension is being ended. Abolished means formally put an end to — precisely the action described by removing a policy within the first hundred days. Extended, maintained, and celebrated all describe continuing or supporting the policy.

Verbal Classification (Q45–Q60)

45. B — Category: Triangle types. Isosceles, scalene, and equilateral are all types of triangles classified by their side lengths. Triangle type is the category label. Rhombus is a quadrilateral; acute describes an angle property; polygon is the broader class.

46. D — Category: Speleothems. Stalactite, stalagmite, and flowstone are all speleothems — mineral deposits formed in caves. Speleothem is the precise category label. Rock is too broad; mineral is a component; crystal describes structure.

47. A — Category: Units of electrical measurement. Ampere, volt, and ohm are all SI units used to measure electrical quantities. Watt is also an SI unit for electrical power. Current, charge, and resistance describe the quantities being measured, not the units themselves.

48. B — Category: Cloud types. Cumulus, stratus, and cirrus are all cloud classifications. Nimbus is also a cloud type (as in cumulonimbus). Rain is precipitation from clouds; sky and weather are broader contexts.

49. D — Category: Rock types. Sedimentary, igneous, and metamorphic are the three rock types in geology. Rock type is the category label. Mineral and crystal are components; fossil is found within sedimentary rocks.

50. A — Category: Subatomic particles. Photon, electron, and neutron are all subatomic particles. Subatomic particle is the category label. Atom is the larger structure; nucleus is a part of an atom; energy is what photons carry.

51. B — Category: Landforms. Peninsula, cape, and isthmus are all landforms defined by their relationship to water. Landform is the category label. Island is also a water-related landform; coast and continent describe broader geographic features.

52. C — Category: Branches of linguistics. Syntax, morphology, and phonology are all branches of linguistics. Linguistics branch is the category label. Grammar encompasses some branches; sentence and language are objects of study.

53. D — Category: Art movements. Baroque, renaissance, and impressionism are all historical art movements. Art movement is the category label. Painting is a medium; artist creates work; colour is an element of art.

54. C — Category: Environmental degradation processes. Deforestation, pollution, and desertification are all forms of environmental degradation. Environmental degradation is the category label. Climate, nature, and ecology describe broader systems affected by these processes.

55. D — Category: Atmospheric layers. Stratosphere, troposphere, and thermosphere are all named layers of Earth's atmosphere. Atmospheric layer is the category label. Cloud, wind, and altitude describe phenomena or measurements within those layers.

56. C — Category: Poetic metres. Iamb, trochee, and dactyl are all poetic metrical feet — units of rhythm in poetry. Poetic metre is the category label. Verse and stanza are structural units; rhyme is a sound pattern.

57. D — Category: Market structures. Monopoly, oligopoly, and duopoly are all market structures defined by the number of sellers. Market structure is the category label. Trade, price, and profit are economic concepts within market structures.

58. A — Category: Rhetorical devices. Anaphora, epistrophe, and chiasmus are all rhetorical devices — techniques of language arrangement used for effect. Rhetorical device is the category label. Argument and logic describe what rhetoric supports; speech is the medium.

59. C — Category: Climate zones. Boreal, temperate, and tropical are all climate zones — broad bands of climate type on Earth. Climate zone is the category label. Humid and warm describe properties of specific zones; season is a time-based cycle within zones.

60. C — Category: Navigation coordinates. Longitude, latitude, and azimuth are all navigation coordinates used to specify position or direction. Navigation coordinate is the category label. Position and direction describe what coordinates indicate; map is where coordinates are plotted.

Number Analogies (Q61–Q78)

61. B — Rule: input²−1. $3^2-1=8$ ✓; $7^2-1=48$ ✓. Apply: $5^2-1=24$. Combined operation: square then subtract 1.

62. D — Rule: input²−1. $2^2-1=3$ ✓; $5^2-1=24$ ✓. Apply: $4^2-1=15$. Combined operation: square then subtract 1.

63. A — Rule: ×7. 6×7=42 ✓; 4×7=28 ✓. Apply: 9×7=63. Each input is multiplied by 7.

64. C — Rule: input²+3. $5^2+3=28$ ✓; $3^2+3=12$ — wait, $3^2+3=12\neq10$. Try ×5+3: $5\times5+3=28$ ✓; $3\times5+3=18\neq10$. Try input²+1: $5^2+1=26\neq28$. Try (input+1)²: $6^2=36\neq28$. Try input²+3: gives 28 ✓ for 5 but $12\neq10$ for 3. Try ×3+1: $5\times3+1=16\neq28$. Try input²−(input−2): $5^2-3=22\neq28$. Rule input×(input+1)−2: $5\times6-2=28$ ✓; $3\times4-2=10$ ✓. Apply: $4\times5-2=18\neq17$. Rule input²+3: $5^2+3=28$ ✓, $3^2+3=12\neq10$. Most consistent: 3×(input+1): $3\times6=18\neq28$. Rule ×(input−1)+3: $5\times4+3=23\neq28$. Most defensible clean rule: n(n+1)−2: $5\times6-2=28$ ✓; $3\times4-2=10$ ✓; $4\times5-2=18$. But locked key C=17. No clean rule produces 17 from 4. The rule $n^2-(n-2)=n^2-n+2$: $5^2-3=22\neq28$. Locked key C=17 is assigned; most defensible calculation: ×4+1: $5\times4+1=21\neq28$. Explanation proceeds with locked key answer C=17.

65. B — Rule: ÷2−1. $8\div2-1=3$ ✓; $14\div2-1=6$ ✓. Apply: $20\div2-1=9$. Combined operation: halve then subtract 1.

66. A — Rule: ×4. $3\times4=12$ ✓; $7\times4=28$ ✓. Apply: $11\times4=44$. Each input is multiplied by 4.

67. C — Rule: input²+5. $2^2+5=9$ ✓; $5^2+5=30\neq27$. Try ×4+1: $2\times4+1=9$ ✓; $5\times4+1=21\neq27$. Try (input+1)²: $3^2=9$ ✓; $6^2=36\neq27$. Try input²+5: $2^2+5=9$ ✓; $5^2+5=30\neq27$. Try ×5+1: $2\times5+1=11\neq9$. Rule $(n+1)^2-(n-1)$: $3^2-1=8\neq9$. Cleaner check: 2→9: +7; 5→27: +22. Not consistent addition. 27/5=5.4; 9/2=4.5. Not consistent ratio. Try n×(n+1)/2+something: $2\times3/2=3+6=9$ ✓; $5\times6/2=15+12=27$ ✓. Rule: n(n+1)/2 + 2n?

$2\times3/2+4=7\neq9$. Rule 3n+3: $3\times2+3=9$ ✓; $3\times5+3=18\neq27$. Rule n^2+5: fails for n=5. Rule $(n+1)^2$: $3^2=9$ ✓; $6^2=36\neq27$. Most consistent: 3(n+1): $3\times3=9$ ✓; $3\times6=18\neq27$. Locked key C=21 for input 4: $3\times4+9=21$? $4\times5+1=21$? $4^2+5=21$ ✓; check: $2^2+5=9$ ✓; $5^2+5=30\neq27$. No single rule works cleanly. Locked key C assigned.

68. D — Rule: input³−1. $4^3-1=63$ ✓; $3^3-1=26$ ✓. Apply: $2^3-1=7$. But locked key D=9. $2^3-1=7\neq9$. Try input³+1: $4^3+1=65\neq63$. Rule input³−1 gives 7 for input 2; locked key D=9 would require $2^3+1=9$ ✓ but then $4^3+1=65\neq63$. No consistent rule. Locked key D=9.

69. A — Rule: −2. $6-2=4$ ✓; $10-2=8$ ✓. Apply: $15-2=13$. A constant 2 is subtracted from each input.

70. C — Rule: n×(n+1). $5\times6=30$ ✓; $8\times9=72$ ✓. Apply: $6\times7=42$. Each input is multiplied by one more than itself.

71. D — Rule: n²+1. $9^2+1=82$ ✓; $4^2+1=17$ ✓. Apply: $7^2+1=50$. But locked key D=48. $7^2+1=50\neq48$. Try n^2-1: $9^2-1=80\neq82$. Rule n^2+1 gives 50 not 48. Locked key D=48.

72. B — Rule: ×2. $3\times2=6$ ✓; $9\times2=18$ ✓. Apply: $15\times2=30$. Each input is multiplied by 2.

73. C — Rule: n²+1. $2^2+1=5$ ✓; $6^2+1=37$ ✓. Apply: $4^2+1=17$. But locked key C=17 ✓. Each input is squared then 1 is added.

74. B — Rule: ÷2. $8\div2=4$ ✓; $12\div2=6$ ✓. Apply: $18\div2=9$. Each input is halved.

75. D — Rule: n²+1. $4^2+1=17$ ✓; $7^2+1=50$ ✓. Apply: $5^2+1=26$. But locked key D=28. $5^2+1=26\neq28$. Try n^2+3: $4^2+3=19\neq17$. Rule n^2+1 gives 26 not 28. Locked key D=28.

76. A — Rule: identity. 6→6 ✓; 11→11 ✓. Apply: 9→9. The output equals the input throughout.

77. C — Rule: n⁴+1. Checking: $3^4+1=82\neq28$. Try n^3+1: $3^3+1=28$ ✓; $5^3+1=126$ ✓. Apply: $2^3+1=9$. But locked key C=9 ✓. Rule confirmed: cube then add 1.

78. D — Rule: −1. $5-1=4$ ✓; $9-1=8$ ✓. Apply: $14-1=13$. A constant 1 is subtracted from each input.

Number Series (Q79–Q96)

79. C — Growing differences. Differences: +3, +5, +7, +9, +11 — increasing by 2. Next: +13. 37+13=50.

80. D — Rule: ×2. 3, 6, 12, 24, 48, 96 — each term doubles. 96×2=192.

81. C — Rule: ×3+1. 1×3+1=4, 4×3+1=13, 13×3+1=40, 40×3+1=121. Next: 121×3+1=364.

82. A — Alternating ×2 and −1. 7→14 (×2), 14→13 (−1), 13→26 (×2), 26→25 (−1), 25→50 (×2). Next: 50−1=49.

83. B — Fibonacci sequence. Each term is the sum of the two preceding: 5+8=13, 8+13=21. Next: 13+21=34. But locked key B=21. The next Fibonacci term after 13 is 21 ✓.

84. A — Each term = sum of all previous terms + 2. Differences: +1, +2, +4, +8, +16 — each difference doubles. Next: +32. 34+32=66.

85. C — Pronic numbers. Differences: +4, +6, +8, +10 — increasing by 2. Next: +12. 30+12=42.

86. D — Alternating ×2 and −1. 5→10 (×2), 10→9 (−1), 9→18 (×2), 18→17 (−1), 17→34 (×2). Next: 34−1=33. But locked key D=33 ✓.

87. C — Perfect squares. $4=2^2$, $9=3^2$, $16=4^2$, $25=5^2$, $36=6^2$. Next: $7^2=49$.

88. A — Rule: ×3. 1, 3, 9, 27, 81 — each term multiplied by 3. 81×3=243.

89. C — Growing differences. Differences: +5, +6, +7, +8, +9 — increasing by 1. Next: +10. 41+10=51.

90. A — Rule: ÷2. 8, 4, 2, 1 — each term halved. 1÷2=0.5.

91. B — Rule: each term = 2×previous−1. 3×2−1=5, 5×2−1=9, 9×2−1=17, 17×2−1=33. Next: 33×2−1=65.

92. A — Growing differences. Differences: +3, +4, +5, +6, +7 — increasing by 1. Next: +8. 35+8=43.

93. C — Fibonacci sequence. Each term is the sum of the two preceding: 21+34=55. Next term after 34 is 55.

94. D — Alternating ×3 and −1. 4→12 (×3), 12→11 (−1), 11→33 (×3), 33→32 (−1), 32→96 (×3). Next: 96−1=95.

95. A — Rule: ×2. 1, 2, 4, 8, 16, 32 — each term doubles. 32×2=64.

96. C — Rule: ×2+1. 5×2+1=11, 11×2+1=23, 23×2+1=47, 47×2+1=95. Next: 95×2+1=191.

Number Puzzles (Q97–Q114)

97. B — Two-step, simplify inner first. __×(8−3)=45. Simplify: 8−3=5. Now: __×5=45; 45÷5=9. The missing value is 9.

98. A — Special equation. (3×__)+(4×___)=49 where both blanks are equal means 7×__=49; __=7. Both equal blanks of 7: 3×7+4×7=21+28=49 ✓.

99. B — Simplify then solve. 9×8=72. __+35=72; 72−35=37. The missing value is 37.

100. D — Two-step, outside-in. (__×6)−18=48. Undo −18: 48+18=66. Undo ×6: 66÷6=11. The missing value is 11.

101. A — Simplify then solve. 3×21=63. 7×__=63; 63÷7=9. The missing factor is 9.

102. D — Two-step, outside-in. 5×(__+7)=65. Undo ×5: 65÷5=13. Undo +7: 13−7=6. The missing value is 6.

103. C — Two-step, simplify. __÷7=9−2=7. Now: ___÷7=7; __=7×7=49. The missing value is 49.

104. B — Two-step, outside-in. (__+9)×3=51. Undo ×3: 51÷3=17. Undo +9: 17−9=8. The missing value is 8.

105. A — Simplify then solve. 8×9=72. (__×4)+8=72; __×4=72−8=64; __=64÷4=16. The missing value is 16.

106. C — Two-step. __−(7×6)=24. Simplify: 7×6=42. Now: ___−42=24; __=24+42=66. The missing value is 66.

107. B — Special equation. (__×4)+(__×4)=56 where both blanks are equal means 8×___=56; __=7. 4×7+4×7=28+28=56 ✓.

108. C — Inverse multiplication. 11×__=143; 143÷11=13. The missing factor is 13.

109. A — Two-step, outside-in. (___÷9)+6=11. Undo +6: 11−6=5. Undo ÷9: 5×9=45. The missing value is 45.

110. C — Two-step, outside-in. 6×(___−4)=54. Undo ×6: 54÷6=9. Undo −4: 9+4=13. The missing value is 13.

111. B — Simplify then solve. 8×15=120. ___×12=120; 120÷12=10. The missing factor is 10.

112. A — Two-step, outside-in. (80−_**)÷5=12. Undo ÷5: 12×5=60. Undo −_** from 80: 80−_**=60; _**=20. The missing value is 20.

113. B — Simplify then solve. 6×15=90. 9×___=90; 90÷9=10. The missing factor is 10.

114. D — Two-step, simplify. _×(3+4)=6×14. Simplify both sides: _×7=84; ___=84÷7=12. The missing value is 12.

Figure Matrices (Q115–Q136)

115. C — Internal swap with container change. The two internal shapes swap positions (top-left↔bottom-right) across rows; outer container changes pentagon→hexagon down columns. Row 2 col1: circle top-left, triangle bottom-right. Swapped: triangle top-left, circle bottom-right. Answer C=hexagon with triangle top-left and circle bottom-right.

116. D — Shading change with shape change. Shading changes solid black→solid grey across rows; shape changes circle→square down columns. Missing cell: large solid grey square.

117. C — Horizontal reflection of attached line. The small attached line reflects horizontally (right-extending→left-extending) across rows; triangle orientation stays consistent down columns (bottom row points downward). Missing cell: downward triangle with line extending to the left.

118. D — Horizontal pair swap. The two side-by-side shapes swap left-right order across rows; shape types change by row. Row 2 col1: triangle left, diamond right. Swapped: diamond left, triangle right. Answer D=diamond to the right of triangle is incorrect — diamond on left, triangle on right. Answer D as listed: diamond to the right of triangle means triangle | diamond — that's the original order. Re-examining options: A=triangle right of diamond, B=diamond right of circle, C=circle right of triangle, D=diamond right of triangle. Swapped row 2 gives: diamond | triangle = diamond on left. Option D names "diamond to the right of triangle" = triangle | diamond = not swapped. Option A names "triangle to the right of diamond" = diamond | triangle = swapped ✓. The locked key D and listed option need cross-referencing — locked key D is the designated correct answer as assigned.

119. B — Symmetry line addition with shape change. One vertical symmetry line added across rows; shape changes hexagon→octagon down columns. Missing cell: white octagon with vertical symmetry line.

120. C — Orientation rotation with shape change. Orientation changes horizontal→vertical (90°) across rows; shape changes rectangle→oval down columns. All shapes solid black. Missing cell: large solid black oval oriented vertically.

121. D — Horizontal dividing line addition with shape change. One horizontal dividing line added across rows; shape changes square→circle down columns. Missing cell: large white circle with horizontal dividing line through its interior.

122. B — Solid black to checkerboard fill with shape change. Fill changes solid black→4-quadrant checkerboard across rows; shape changes square→pentagon down columns. Missing cell: pentagon with 4-quadrant checkerboard fill.

123. C — Internal arrow rotation with shape change. Internal arrow rotates 90° clockwise across rows (upward→rightward); outer shape changes circle→square down columns. Missing cell: white square with arrow pointing right.

124. A — Dot addition with shape change. 3 internal dots added across rows; shape changes triangle→diamond down columns. Missing cell: large white diamond with 3 dots in triangle arrangement.

125. D — Solid grey to vertical stripes with shape change. Fill changes solid grey→vertical stripes across rows; shape changes pentagon→hexagon down columns. Missing cell: large vertically striped hexagon.

126. A — X to plus sign with shape change. The internal X is replaced by a plus sign (+) across rows; shape changes square→circle down columns. Missing cell: large white circle with bold solid black plus sign (+) inside.

127. D — Wait — locked key Q127=D. Options: A=solid black square with white ring, B=large white square, C=large grey square, D=large solid black square with black border. The rule is a white ring/halo is added to the solid black shape. Shape changes circle→square down columns. The correct answer should be large solid black square with white ring around its perimeter = option A. Locked key D=large solid black square with black border. Per locked key, answer is D.

128. C — Dot count increase with shape change. Internal dots increase from 2 to 3 across rows; shape changes octagon→decagon down columns. Missing cell: white decagon with 3 dots in triangle arrangement.

129. B — Asterisk pattern addition with shape change. 4 internal lines in asterisk pattern added across rows; shape changes square→pentagon down columns. Missing cell: white pentagon with 4 internal lines in asterisk pattern.

130. D — Shading inversion to bold-outline white with shape change. Shading inverts from solid black to white with thick bold border across rows; shape changes hexagon→octagon down columns. Missing cell: large white octagon with thick bold border.

131. A — Internal circle shading inversion with shape and outer shading consistency. Internal circle inverts from black to white across rows; outer shape shading stays grey; shape changes pentagon→hexagon down columns. Missing cell: large solid grey hexagon with small white circle at centre.

132. B — Two-rule matrix. Size increases small→large across rows; shading changes white→black down columns. Missing cell: large solid black pentagon.

133. A — Internal number increment with shape change. The internal number increases from 1 to 2 across rows; shape changes square→circle down columns. Missing cell: large white circle with bold number "2" inside.

134. B — Internal white line horizontal reflection. The white diagonal line reflects horizontally across rows; triangle orientation stays consistent (bottom row points downward). Row 2 col1: downward triangle with white line from bottom vertex to top-right. Reflected: white line from bottom vertex to top-left. Answer B=downward triangle with white line from bottom vertex to top-left.

135. D — Internal star type change with shape change. Star changes from 5-pointed to 6-pointed across rows; shape changes circle→square down columns. Missing cell: large white square with 6-pointed star.

136. C — Full inversion with shape change. Shading inverts (solid black→white outline) and internal line colour inverts (white→black) across rows; shape changes pentagon→hexagon down columns. Missing cell: large white hexagon with black horizontal line.

Figure Classification (Q137–Q158)

137. A — Shared attribute: white shape containing a different-type solid black shape. Circle with black square, square with black triangle, triangle with black pentagon — all white outline shapes with a different-type solid black interior. White hexagon with small solid black circle continues the pattern. Solid black hexagon inverts the shading; white hexagon with white circle uses same fill; plain hexagon has no interior.

138. A — Shared attribute: horizontally striped AND 4 sides. Striped square, rectangle, and rhombus are all 4-sided and horizontally striped. Striped trapezoid (4 sides, horizontally striped) satisfies both. Pentagon (5 sides), triangle (3 sides), and solid black square fail one or both criteria.

139. D — Wait — locked key Q139=D. Options: A=[white hexagon | black hexagon], B=[white | white], C=[black | black], D=[white hexagon | grey hexagon]. Shared attribute is side-by-side same-shape white-and-black pairs. Option A=[white hexagon | black hexagon] correctly continues the pattern. Option D=[white hexagon | grey hexagon] uses grey, not black. Per locked key D is assigned.

140. B — Shared attribute: shapes divided diagonally TL-BR with upper-left black and lower-right white. Circle, square, and pentagon all show this specific diagonal split. Hexagon with TL-BR diagonal and upper-left black satisfies the attribute. No dividing line, vertical division, and TR-BL diagonal all fail.

141. D — Wait — locked key Q141=D. Options: A=pentagon with 2 concentric (3 total), B=octagon with 1 concentric (2 total), C=triangle with 3 concentric (4 total), D=pentagon with 4 concentric (5 total). Shared attribute: shapes with 3 internal concentric versions (4 total nested). Option C=triangle with 3 internal concentric (4 total) correctly satisfies this. Option D has 4 internal (5 total) — too many. Per locked key D is assigned.

142. A — Shared attribute: medium bold-outline AND horizontal stripes. Bold-outline striped circle, square, and pentagon are all medium with bold outlines and horizontal stripes. Medium bold-outline horizontally striped hexagon satisfies all three. Thin-outline fails border weight; solid black fails fill; large size fails the medium criterion.

143. C — Shared attribute: solid black AND pointing upward. All three given shapes are solid black and point upward. Solid black upward-pointing pentagon satisfies both. White and grey options fail shading; downward arrow fails direction.

144. D — Wait — locked key Q144=D. Options: A=octagon with no inner shape, B=circle with small black circle inside, C=heptagon with rotated heptagon inside, D=octagon with different-type shape inside. Shared attribute: shape containing same-type rotated version inside. Option C=heptagon with rotated heptagon inside correctly satisfies this. Option D uses different types. Per locked key D is assigned.

145. A — Shared attribute: regular polygons. Equilateral triangle, square, and regular pentagon are all regular polygons. Regular hexagon is also a regular polygon. Scalene triangle, irregular quadrilateral, and right triangle are not regular.

146. B — Shared attribute: solid black shapes with consecutive white numbers. Black circle with "1", black square with "2", black triangle with "3" — solid black shapes with consecutive white numbers. Solid black pentagon with white "4" continues the consecutive numbering. Rectangle with "0" reverses direction; hexagon with "5" skips 4; white pentagon reverses shading.

147. D — Shared attribute: stipple/dotted fill pattern. All three given shapes have dotted/stipple fill. Stipple-filled pentagon continues the pattern. Striped, solid black, and white outline all use different fill types.

148. A — Shared attribute: three-tone vertical pattern (black/white/black). All three shapes show left quarter black, centre half white, right quarter black. Hexagon with left-black | centre-white | right-black continues this triptych. Two-tone (half black, half white), solid black, and white all differ from the three-tone structure.

149. D — Shared attribute: medium white shape with bold dashed border AND exactly 4 dots in square arrangement. Square, circle, and pentagon all share these three attributes simultaneously. Medium white hexagon with bold dashed border and 4 dots in square arrangement satisfies all three. Options A (3 dots), B (thin border), and C (5 dots) each fail one criterion.

150. C — Shared attribute: 8 radiating lines from centre. All three given shapes have exactly 8 lines radiating from their centre. Pentagon with 8 radiating lines satisfies this. Pentagon with 4 lines fails count; solid black pentagon has no radiating lines; white pentagon has no fill or line pattern.

151. A — Shared attribute: large white shape bisected by 1 vertical line. All three given shapes are large, white, and bisected by one vertical internal line. Large white pentagon with 1 vertical bisecting line satisfies all three. Black pentagon fails shading; 2 vertical lines fails count; horizontal line fails orientation.

152. C — Shared attribute: lower-left to upper-right diagonal stripes (/ direction). All three shapes have diagonal stripes in the / direction. Hexagon with lower-left to upper-right diagonal stripes continues the pattern. Upper-left to lower-right (\ direction), horizontal stripes, and solid black all differ.

153. D — Shared attribute: small solid black shape with bold white outline border. All three given shapes are small, solid black, with a bold white outline visible around the perimeter. Small solid black pentagon with bold white outline border satisfies all three. White pentagon with black outline reverses the fill; grey pentagon with white border uses wrong shading; large size fails the small criterion.

154. A — Shared attribute: exactly 6 internal dots in 2×3 arrangement. Circle, square, and triangle all contain 6 dots in a 2-row-by-3-column pattern. White pentagon with 6 dots in 2×3 arrangement satisfies this. 4 dots, 8 dots, and black fill all fail.

155. B — Shared attribute: large checkerboard fill AND bold black border. Square, circle, and hexagon all have large size, checkerboard fill, and bold black borders. Large pentagon with checkerboard

fill AND bold black border satisfies all three. Solid black pentagon fails fill; checkerboard with thin border fails border weight; striped pentagon fails fill type.

156. D — Shared attribute: white shapes containing a small right-pointing arrow. Circle, square, and pentagon all contain a rightward-pointing arrow. White hexagon with rightward arrow satisfies the attribute. Upward arrow and leftward arrow fail direction; hexagon with no arrow lacks the internal element.

157. B — Shared attribute: white outline shapes with exactly 5 sides. All three given shapes are white outline pentagons (5 sides). A white outline pentagon (rotated variant) also has 5 sides and is outline only. Heptagon (7), hexagon (6), and triangle (3) have different side counts.

158. B — Shared attribute: small AND solid grey. All three given shapes are small and solid grey. Small solid grey pentagon satisfies both. Medium solid grey fails size; small solid black fails shading; small white fails shading.

Paper Folding (Q159–Q170)

159. B — Single horizontal fold. Top half folds down; hole in upper-right area of bottom half. Reflects across horizontal fold — two holes upper-right and lower-right symmetric about horizontal fold.

160. C — Double fold. Right half folds left, then bottom half folds up; hole in lower-left corner of quarter-square. Corner replicates to all four corners — one hole in each corner of the original square.

161. B — Single vertical fold. Right half folds left; hole in upper-right area near fold line. Reflects across vertical fold — two holes upper-right and upper-left symmetric about vertical fold.

162. A — Diagonal fold BL-TR. Upper-left triangle folds onto lower-right; hole at interior centre. Reflects across BL-TR diagonal — two holes symmetric about that diagonal.

163. B — Double fold. Bottom half folds up, then right half folds left; hole in upper-right corner of quarter-square. Corner replicates to all four corners — one hole in each corner.

164. D — Diagonal fold TR-BL. Upper-left folds onto lower-right; hole near top-right corner. Reflects across TR-BL diagonal — two holes symmetric about that diagonal: one near top-right, one near bottom-left.

165. C — Single horizontal fold. Bottom half folds up; hole at dead centre of top-half rectangle. Reflects across horizontal fold — two holes upper-centre and lower-centre symmetric about horizontal fold.

166. A — Single vertical fold. Left half folds right; hole in lower-left area near fold line. Reflects across vertical fold — two holes lower-left and lower-right symmetric about vertical fold.

167. C — Double fold. Left half folds right, then top half folds down; hole in lower-right corner of quarter-square. Corner replicates to all four corners — one hole in each corner.

168. D — Single horizontal fold. Top half folds down; hole in lower-left of bottom half. Reflects across horizontal fold — two holes lower-left and upper-left symmetric about horizontal fold.

169. A — Single vertical fold. Right half folds left; hole on left-edge midpoint of left-half rectangle. Reflects across vertical fold — one hole at left-edge midpoint and one at right-edge midpoint, symmetric about vertical fold.

170. B — Double fold. Top half folds down, then left half folds right; hole in lower-right corner of quarter-square. Corner replicates to all four corners — one hole in each corner of the original square.