

PRACTICE EXAM 10: CCAT GRADE 4 SIMULATION (176 QUESTIONS)

This practice exam contains 176 multiple-choice questions arranged in the same three groups as the real test: Verbal, Quantitative, and Nonverbal. Each question has four answer choices, labeled A through D, and only one is correct. Describe each rule in your own words before choosing, mark an answer for every question, and use the answer key and explanations afterward to review every item, including those you answered correctly. The real CCAT times each of its nine tests at 10 minutes, so you may wish to practice some sections with a timer.

1. Snow is to winter as flowers are to ____.

- A. spring
- B. mittens
- C. sleet
- D. icicle

2. Pumpkin is to autumn as snowman is to ____.

- A. summer
- B. spring
- C. winter
- D. morning

3. Coat is to winter as swimsuit is to ____.

- A. winter
- B. summer
- C. sled
- D. scarf

4. Mitten is to hand as boot is to ____.

- A. head
- B. knee
- C. ear
- D. foot

5. Summer is to winter as hot is to ____.

- A. warm
- B. sunny
- C. cold
- D. windy

6. Scarf is to neck as sunglasses are to ____.

- A. eyes
- B. ears
- C. hands
- D. feet

7. Spring is to summer as autumn is to ____.

- A. spring
- B. summer
- C. sunrise
- D. winter

8. Rake is to leaves as shovel is to ____.

- A. rain
- B. snow
- C. wind
- D. sunshine

9. Kite is to fly as sled is to ____.

- A. bloom
- B. melt
- C. swim
- D. slide

10. Pumpkin is to Halloween as heart is to ____.

- A. Thanksgiving
- B. Canada Day
- C. Valentine's Day
- D. Labour Day

11. Warm is to hot as cool is to ____.

- A. sunny
- B. cold
- C. windy
- D. wet

12. January is to winter as August is to ____.

- A. summer

- B. autumn
- C. spring
- D. weekend

13. Squirrel is to acorn as bee is to ____.

- A. snow
- B. bark
- C. pebble
- D. nectar

14. Seed is to flower as egg is to ____.

- A. chick
- B. nest
- C. shell
- D. farm

15. Hive is to bee as den is to ____.

- A. honey
- B. bear
- C. stinger
- D. pollen

16. Ruler is to length as calendar is to ____.

- A. weight
- B. speed
- C. date
- D. color

17. Poppy is to Remembrance Day as maple leaf is to ____.

- A. Halloween
- B. Canada Day
- C. Valentine's Day
- D. New Year's Day

18. Frost is to cold as sweat is to ____.

- A. snow
- B. wind
- C. rain
- D. heat

19. Bloom is to wilt as thaw is to ____.

- A. freeze
- B. melt
- C. drip
- D. warm

20. Whisper is to shout as drizzle is to ____.

- A. breeze
- B. fog
- C. downpour
- D. mist

21. In winter, the lake was so cold that the water turned to ____.

- A. sand
- B. smoke
- C. ice
- D. grass

22. We wore warm mittens because the winter wind was very _____.

- A. cold
- B. sweet
- C. shy
- D. round

23. The pond _____ every winter, so children can skate across it.

- A. boils
- B. freezes
- C. burns
- D. sings

24. Dad raked the _____ that fell from the maple tree in autumn.

- A. snowflakes
- B. waves
- C. seashells
- D. leaves

25. The summer sun was so _____ that we sat under a shady tree.

- A. hot

- B. dark
- C. quiet
- D. frozen

26. At the New Year's party, everyone ____ when the clock struck midnight.

- A. melted
- B. cheered
- C. wilted
- D. planted

27. The fireworks lit up the dark sky on Canada Day with bright ____.

- A. puddles
- B. crumbs
- C. colours
- D. shadows

28. The seeds needed ____ and sunshine to grow into tall plants in the spring.

- A. metal
- B. candy
- C. smoke
- D. water

29. Tulips and daffodils begin to ____ when spring finally arrives.

- A. freeze
- B. shrink
- C. hibernate
- D. bloom

30. Because the roads were covered in ice, the bus driver drove very ____.

- A. loudly
- B. happily
- C. slowly
- D. brightly

31. Geese fly south in autumn in a ____ shaped like the letter V.

- A. formation
- B. fortune
- C. fraction
- D. fossil

32. The ____ in the pumpkin patch were so big that Leo needed both arms to lift one.

- A. pebbles
- B. pumpkins
- C. pennies
- D. petals

33. Even though it was only March, the snow had begun to ____ and puddles formed.

- A. glow
- B. sink
- C. bark
- D. melt

34. To save food for the long winter, squirrels ____ acorns in autumn.

- A. lose
- B. sell
- C. gather
- D. paint

35. The families were _____ to see each other at the holiday reunion after a year apart.

- A. delighted
- B. annoyed
- C. bored
- D. puzzled

36. The leaves turning red and gold show the _____ from summer to autumn.

- A. echo
- B. recipe
- C. weight
- D. change

37. Frost _____ the grass overnight, so each blade sparkled white in the morning.

- A. chased
- B. coated
- C. carried
- D. tasted

38. The farmer was _____ about the late frost because it might ruin the young crops.

- A. anxious

- B. delighted
- C. careless
- D. grateful

39. The ____ weather in April changed from sunshine to hail in one hour.

- A. permanent
- B. identical
- C. unpredictable
- D. peaceful

40. The ____ summer afternoon was so ____ that everyone wanted shade.

- A. frosty, cold
- B. sunny, hot
- C. rainy, dry
- D. dark, cool

41. Which word belongs with: mittens, scarf, hat?

- A. sandal
- B. shorts
- C. coat
- D. swimsuit

42. Which word belongs with: winter, spring, summer?

- A. Monday
- B. autumn
- C. June
- D. snowball

43. Which word belongs with: sled, skates, skis?

- A. snowshoes
- B. kite
- C. canoe
- D. sandal

44. Which word belongs with: Halloween, Easter, Thanksgiving?

- A. Sunday
- B. spring
- C. summer
- D. Canada Day

45. Which word belongs with: snow, rain, hail?

- A. wind
- B. sunshine
- C. fog
- D. drizzle

46. Which word belongs with: tulip, daisy, crocus?

- A. violet
- B. maple
- C. pine
- D. cactus

47. Which word belongs with: robin, sparrow, crow?

- A. squirrel
- B. beetle
- C. blue jay
- D. salmon

48. Which word belongs with: fireworks, parade, picnic?

- A. blizzard
- B. barbecue
- C. sweater
- D. frostbite

49. Which word belongs with: stopwatch, ruler, thermometer?

- A. scale
- B. pencil
- C. eraser
- D. glue

50. Which word belongs with: rake, shovel, hoe?

- A. hammer
- B. whistle
- C. blanket
- D. trowel

51. Which word belongs with: cinnamon, nutmeg, ginger?

- A. carrot

- B. butter
- C. clove
- D. honey

52. Which word belongs with: sprinkle, drizzle, pour?

- A. freeze
- B. shower
- C. bloom
- D. shiver

53. Which word belongs with: frosty, icy, chilly?

- A. sunny
- B. freezing
- C. humid
- D. toasty

54. Which word belongs with: ornament, tinsel, garland?

- A. crayon
- B. shovel
- C. wreath
- D. bucket

55. Which word belongs with: January, March, October?

- A. Tuesday
- B. winter
- C. week
- D. August

56. Which word belongs with: maple, oak, birch?

- A. aspen
- B. fern
- C. tulip
- D. moss

57. Which word belongs with: canoe, kayak, raft?

- A. skateboard
- B. rowboat
- C. bicycle
- D. wagon

58. Which word belongs with: ladybug, dragonfly, cricket?

- A. sparrow
- B. frog
- C. grasshopper
- D. worm

59. Which word belongs with: blizzard, hurricane, tornado?

- A. thunderstorm
- B. drizzle
- C. sunrise
- D. rainbow

60. Two number pairs follow the same rule: $4 : 11$ and $9 : 16$. Which number goes with 13 ($13 : ?$) in the same way?

- A. 26
- B. 23
- C. 18
- D. 20

61. Two number pairs follow the same rule: $15 : 6$ and $22 : 13$. Which number goes with 31 ($31 : ?$) in the same way?

- A. 40
- B. 25
- C. 22
- D. 21

62. Two number pairs follow the same rule: $4 : 20$ and $9 : 45$. Which number goes with 7 ($7 : ?$) in the same way?

- A. 28
- B. 42
- C. 12
- D. 35

63. Two number pairs follow the same rule: $48 : 6$ and $72 : 9$. Which number goes with 56 ($56 : ?$) in the same way?

- A. 8
- B. 7
- C. 48
- D. 14

64. Two number pairs follow the same rule: $90 : 9$ and $130 : 13$. Which number goes with 270 ($270 : ?$) in the same way?

- A. 27
- B. 260
- C. 54
- D. 2700

65. Two number pairs follow the same rule: $12 : 30$ and $20 : 38$. Which number goes with 33 ($33 : ?$) in the same way?

- A. 51
- B. 66
- C. 50
- D. 45

66. Two number pairs follow the same rule: $100 : 75$ and $60 : 35$. Which number goes with 90 ($90 : ?$) in the same way?

- A. 70
- B. 115
- C. 45
- D. 65

67. Two number pairs follow the same rule: $8 : 12$ and $18 : 27$. Which number goes with 34 ($34 : ?$) in the same way?

- A. 68
- B. 51
- C. 46
- D. 42

68. Two number pairs follow the same rule: 5 : 17 and 8 : 26. Which number goes with 10 (10 : ?) in the same way?

- A. 30
- B. 22
- C. 32
- D. 33

69. Two number pairs follow the same rule: 6 : 13 and 9 : 19. Which number goes with 15 (15 : ?) in the same way?

- A. 30
- B. 21
- C. 35
- D. 31

70. Two number pairs follow the same rule: 7 : 22 and 9 : 28. Which number goes with 11 (11 : ?) in the same way?

- A. 33
- B. 36
- C. 34
- D. 22

71. Two number pairs follow the same rule: 5 : 40 and 3 : 24. Which number goes with 11 (11 : ?) in the same way?

- A. 88
- B. 77
- C. 99
- D. 19

72. Two number pairs follow the same rule: $30 : 14$ and $44 : 21$. Which number goes with 58 ($58 : ?$) in the same way?

- A. 29
- B. 28
- C. 30
- D. 48

73. Two number pairs follow the same rule: $6 : 36$ and $9 : 81$. Which number goes with 7 ($7 : ?$) in the same way?

- A. 42
- B. 49
- C. 14
- D. 56

74. Two number pairs follow the same rule: $16 : 4$ and $36 : 6$. Which number goes with 81 ($81 : ?$) in the same way?

- A. 27
- B. 72
- C. 9
- D. 40

75. Two number pairs follow the same rule: $6 : 21$ and $9 : 33$. Which number goes with 13 ($13 : ?$) in the same way?

- A. 49
- B. 52
- C. 46
- D. 39

76. Two number pairs follow the same rule: $8 : 11$ and $12 : 19$. Which number goes with 20 ($20 : ?$) in the same way?

- A. 40
- B. 30
- C. 15
- D. 35

77. Two number pairs follow the same rule: $35 : 12$ and $50 : 17$. Which number goes with 65 ($65 : ?$) in the same way?

- A. 22
- B. 21
- C. 23
- D. 55

78. Two number pairs follow the same rule: $3 : 27$ and $5 : 125$. Which number goes with 4 ($4 : ?$) in the same way?

- A. 16
- B. 12
- C. 36
- D. 64

79. Two number pairs follow the same rule: $11 : 19$ and $25 : 47$. Which number goes with 30 ($30 : ?$) in the same way?

- A. 60
- B. 57
- C. 54
- D. 63

80. Solve: $? + 47 = 112$. What number goes in the blank?

- A. 159
- B. 64
- C. 65
- D. 75

81. Solve: $93 - ? = 38$. What number goes in the blank?

- A. 131
- B. 55
- C. 54
- D. 65

82. Solve: $? - 26 = 47$. What number goes in the blank?

- A. 21
- B. 72
- C. 73
- D. 63

83. Solve: 6 times $? = 78$. What number goes in the blank?

- A. 13
- B. 72
- C. 12
- D. 84

84. Solve: $? \text{ divided by } 7 = 12$. What number goes in the blank?

- A. 19
- B. 91
- C. 77
- D. 84

85. Solve: $125 + ? = 203$. What number goes in the blank?

- A. 328
- B. 88
- C. 78
- D. 77

86. Solve: ? times 8 = 136. What number goes in the blank?

- A. 17
- B. 128
- C. 18
- D. 16

87. Solve: 150 divided by ? = 6. What number goes in the blank?

- A. 900
- B. 24
- C. 144
- D. 25

88. Which sign makes this true? $8 ? 12 = 96$

- A. plus
- B. times
- C. minus

D. divided by

89. Solve: ? times $5 - 7 = 38$. What number goes in the blank?

- A. 9
- B. 45
- C. 8
- D. 10

90. Solve: ? divided by $3 + 11 = 25$. What number goes in the blank?

- A. 14
- B. 39
- C. 42
- D. 45

91. Each ? stands for the same number: $? + ? + ? = 69$. What is the number?

- A. 22
- B. 23
- C. 24
- D. 207

92. Which sign makes this true? $45 ? 9 = 5$

- A. plus
- B. minus
- C. times
- D. divided by

93. Solve: ? times $4 + 13 = 61$. What number goes in the blank?

- A. 19
- B. 12
- C. 15
- D. 48

94. Each ? stands for the same number: ? times ? - 5 = 76. What is the number?

- A. 9
- B. 8
- C. 10
- D. 71

95. Which sign makes this true? $27 ? 13 = 14$

- A. plus
- B. times
- C. divided by
- D. minus

96. Solve: $(? + 7)$ times $3 = 60$. What number goes in the blank?

- A. 20
- B. 14
- C. 13
- D. 53

97. Each ? stands for the same number: $? + ? + ? + 6 = 48$. What is the number?

- A. 12
- B. 16
- C. 14
- D. 42

98. Each ? stands for the same number: ? times ? times ? = 216. What is the number?

- A. 8
- B. 6
- C. 9
- D. 72

99. What number comes next? 7, 18, 29, 40, ?

- A. 50
- B. 52
- C. 58
- D. 51

100. What number comes next? 143, 131, 119, 107, ?

- A. 95
- B. 97
- C. 93
- D. 83

101. What number comes next? 31, 32, 34, 37, 41, ?

- A. 45
- B. 47
- C. 50

D. 46

102. What number comes next? 11, 55, 275, 1375, ?

A. 2750

B. 6875

C. 1386

D. 13750

103. What number comes next? 1215, 405, 135, 45, ?

A. 15

B. 5

C. 30

D. 9

104. What number comes next? 8, 11, 9, 12, 10, 13, ?

A. 14

B. 16

C. 11

D. 8

105. What number comes next? 5, 40, 8, 35, 11, 30, ?

A. 25

B. 14

C. 13

D. 16

106. What number comes next? 11, 13, 17, 25, 41, ?

- A. 72
- B. 75
- C. 73
- D. 57

107. What number comes next? 17, 35, 71, 143, ?

- A. 287
- B. 286
- C. 288
- D. 214

108. What number comes next? 2, 4, 10, 28, ?

- A. 84
- B. 56
- C. 80
- D. 82

109. What number comes next? 1, 8, 27, 64, 125, ?

- A. 196
- B. 343
- C. 216
- D. 180

110. What number comes next? 90, 81, 73, 66, ?

- A. 59
- B. 60
- C. 61
- D. 56

111. What number comes next? 1, 4, 10, 22, 46, ?

- A. 92
- B. 96
- C. 70
- D. 94

112. What number comes next? 3, 100, 6, 90, 12, 80, ?

- A. 24
- B. 70
- C. 18
- D. 48

113. What number comes next? 5, 10, 7, 14, 11, 22, ?

- A. 44
- B. 25
- C. 19
- D. 17

114. What number comes next? 4, 5, 9, 14, 23, ?

- A. 32
- B. 37
- C. 36

D. 46

115. What number comes next? 20, 22, 19, 21, 18, 20, ?

A. 17

B. 22

C. 19

D. 15

116. What number comes next? 1, 2, 5, 10, 17, 26, ?

A. 35

B. 38

C. 39

D. 37

117. What number comes next? 2, 4, 12, 48, ?

A. 240

B. 96

C. 192

D. 60

118. What number comes next? 2, 50, 4, 44, 8, 38, 16, ?

A. 30

B. 22

C. 32

D. 24

119. In a 2 by 2 grid, the top row shows one black dot, then two black dots. The bottom row shows one white triangle, then a missing figure. Which figure completes the grid?

- A. one white triangle
- B. two black triangles
- C. three white triangles
- D. two white triangles

120. In a 2 by 2 grid, the top row shows a black dot to the left of a white square, then the black dot to the right of the white square. The bottom row shows a black dot to the left of a white circle, then a missing figure. Which figure completes the grid?

- A. a black dot left of a white circle
- B. a black dot right of a white circle
- C. a black dot above a white circle
- D. a white dot right of a black circle

121. In a 2 by 2 grid, the top row shows a black arrow pointing up, then the same arrow pointing right. The bottom row shows a white triangle with its tip pointing up, then a missing figure. Which figure completes the grid?

- A. a white triangle with its tip down
- B. a white triangle with its tip right
- C. a white triangle with its tip left
- D. a white triangle with its tip up

122. In a 2 by 2 grid, the top row shows a pentagon, then a hexagon. The bottom row shows a square, then a missing figure. Which figure completes the grid?

- A. a pentagon
- B. a triangle
- C. a hexagon

D. a heptagon

123. In a 2 by 2 grid, the top row shows a small circle in the top left corner of a box, then the same circle in the top right corner. The bottom row shows a small star in the bottom left corner of a box, then a missing figure. Which figure completes the grid?

- A. a star in the top right corner
- B. a star in the bottom left corner
- C. a star in the top left corner
- D. a star in the bottom right corner

124. In a 2 by 3 grid, the top row shows a white circle, a grey circle, and a black circle. The bottom row shows a white diamond, a grey diamond, and a missing figure. Which figure completes the grid?

- A. a grey diamond
- B. a white diamond
- C. a black diamond
- D. a black circle

125. In a 2 by 3 grid, the top row shows one white circle, two white circles, and three white circles. The bottom row shows one black square, two black squares, and a missing figure. Which figure completes the grid?

- A. three black squares
- B. three white squares
- C. two black squares
- D. four black squares

126. In a 2 by 3 grid, the top row shows one white square, two grey squares, and three black squares. The bottom row shows one white circle, two grey circles, and a missing figure. Which figure completes the grid?

- A. three white circles
- B. three black circles
- C. two black circles
- D. three black squares

127. In a 2 by 2 grid, the top row shows a white square inside a large black circle, then a black square inside a large white circle. The bottom row shows a white triangle inside a large black hexagon, then a missing figure. Which figure completes the grid?

- A. a white triangle inside a large black hexagon
- B. a white triangle inside a large white hexagon
- C. a black triangle inside a large white hexagon
- D. a black triangle inside a large black hexagon

128. In a 2 by 3 grid, the top row shows an arrow pointing up, then right, then down. The bottom row shows an arrow pointing left, then up, then a missing figure. Which figure completes the grid?

- A. an arrow pointing left
- B. an arrow pointing down
- C. an arrow pointing up
- D. an arrow pointing right

129. In a 2 by 3 grid, the top row shows a circle, a square, and a triangle. The bottom row shows a square, a triangle, and a missing figure. Every shape appears once in each row and once in each column. Which figure completes the grid?

- A. a circle
- B. a square
- C. a triangle
- D. a hexagon

130. In a 2 by 3 grid, the top row shows 2 dots, 1 dot, and 3 dots. The bottom row shows 3 dots, 4 dots, and a missing figure. Which figure completes the grid?

- A. one dot
- B. five dots
- C. six dots
- D. seven dots

131. In a 2 by 3 grid, the top row shows a vertical line, a horizontal line, and a plus sign. The bottom row shows a diagonal line rising to the right, a diagonal line falling to the right, and a missing figure. Which figure completes the grid?

- A. a plus sign
- B. two crossing diagonal lines
- C. one rising diagonal line
- D. a closed triangle shape

132. In a 2 by 3 grid, the top row shows a large black circle, a medium black circle, and a small black circle. The bottom row shows a large white hexagon, a medium white hexagon, and a missing figure. Which figure completes the grid?

- A. a medium white hexagon
- B. a small black hexagon
- C. a small white hexagon
- D. a large white hexagon

133. In a 3 by 3 grid, row 1 shows a circle, a square, and a triangle. Row 2 shows a triangle, a circle, and a square. Row 3 shows a square, a triangle, and a missing figure. Which figure completes the grid?

- A. a square
- B. a triangle
- C. a circle

D. a star

134. In a 3 by 3 grid of black circles, row 1 shows small, medium, large. Row 2 shows large, small, medium. Row 3 shows medium, large, and a missing figure. Which figure completes the grid?

- A. a small black circle
- B. a large black circle
- C. a medium black circle
- D. a small white circle

135. In a 3 by 3 grid, row 1 shows a white circle, a grey circle, and a black circle. Row 2 shows a white square, a grey square, and a black square. Row 3 shows a white triangle, a grey triangle, and a missing figure. Which figure completes the grid?

- A. a grey triangle
- B. a black square
- C. a white triangle
- D. a black triangle

136. In a 3 by 3 grid of squares, each has one black dot touching one inside side. Row 1 shows the top side, right side, bottom side. Row 2 shows right, bottom, left. Row 3 shows bottom, left, and a missing figure. Which figure completes the grid?

- A. a dot on the left side
- B. a dot on the top side
- C. a dot on the right side
- D. a dot on the bottom side

137. In a 3 by 3 grid, row 1 shows a triangle, a square, and a pentagon. Row 2 shows a square, a pentagon, and a hexagon. Row 3 shows a pentagon, a hexagon, and a missing figure. Which figure completes the grid?

- A. an eight-sided shape
- B. a six-sided shape
- C. a seven-sided shape
- D. a four-sided shape

138. In a 3 by 3 grid, row 1 shows a white circle, a grey square, and a black triangle. Row 2 shows a black square, a white triangle, and a grey circle. Row 3 shows a grey triangle, a black circle, and a missing figure. Every shape and every shade appears once in each row and column. Which figure completes the grid?

- A. a white square
- B. a grey square
- C. a black square
- D. a white circle

139. A square sheet of paper is folded in half once. One hole is punched through both layers, away from the fold. How many holes does the unfolded sheet have?

- A. 1 hole
- B. 2 holes
- C. 3 holes
- D. 4 holes

140. A square sheet of paper is folded in half once. Two holes are punched through both layers, away from the fold. How many holes does the unfolded sheet have?

- A. 2 holes
- B. 3 holes
- C. 6 holes
- D. 4 holes

141. A square sheet is folded in half, then folded in half again, so four layers are stacked. One hole is punched through all four layers, away from every fold. How many holes does the unfolded sheet have?

- A. 4 holes
- B. 2 holes
- C. 3 holes
- D. 8 holes

142. A square sheet of paper is folded in half once. Three holes are punched through both layers, away from the fold. How many holes does the unfolded sheet have?

- A. 3 holes
- B. 6 holes
- C. 4 holes
- D. 8 holes

143. A square sheet is folded in half, then folded in half again, making four layers. Two holes are punched through all the layers, away from every fold. How many holes does the unfolded sheet have?

- A. 4 holes
- B. 6 holes
- C. 16 holes
- D. 8 holes

144. A long sheet of paper is folded in thirds like a letter, making three layers. One hole is punched through all three layers, away from the folds. How many holes does the unfolded sheet have?

- A. 2 holes
- B. 1 hole
- C. 3 holes
- D. 6 holes

145. A square sheet is folded in half from left to right, making a crease down the middle. One hole is punched near the top of the folded sheet, away from the crease. When the sheet is unfolded, where are the holes?

- A. one hole at the top, in the middle
- B. two holes, one at the top and one at the bottom
- C. two holes at the top, both on the left side
- D. two holes at the top, one on each side

146. A rectangular sheet is folded in half from bottom to top, making a crease across the middle. One hole is punched near the left edge of the folded sheet, away from the crease. When the sheet is unfolded, where are the holes?

- A. two holes near the left edge, one above and one below the crease
- B. two holes near the left edge, both above the crease
- C. one hole near the left edge, right on the crease
- D. two holes, one near the left edge and one near the right edge

147. A square sheet is folded in half three times, making eight layers. One hole is punched through all the layers, away from every fold. How many holes does the unfolded sheet have?

- A. 6 holes
- B. 4 holes
- C. 8 holes
- D. 16 holes

148. A long sheet of paper is folded in thirds like a letter. Two holes are punched through all three layers, away from the folds. How many holes does the unfolded sheet have?

- A. 5 holes
- B. 6 holes
- C. 4 holes

D. 2 holes

149. A square sheet is folded in half from top to bottom, then folded in half again. Three holes are punched through all the layers, away from every fold. How many holes does the unfolded sheet have?

A. 12 holes

B. 6 holes

C. 8 holes

D. 16 holes

150. A long sheet of paper is folded in thirds like a letter, then folded in half, making six layers. One hole is punched through all six layers, away from every fold. How many holes does the unfolded sheet have?

A. 3 holes

B. 6 holes

C. 5 holes

D. 12 holes

151. A square sheet is folded in half three times, making eight layers. Two holes are punched through all the layers, away from every fold. How many holes does the unfolded sheet have?

A. 8 holes

B. 12 holes

C. 16 holes

D. 6 holes

152. A square sheet is folded in half from top to bottom, then folded in half again from left to right, making a small square. One hole is punched in the middle of the small square, away from all the fold edges. When the sheet is unfolded, where are the holes?

- A. four holes in a row across the middle of the sheet
- B. one hole in the exact centre of the sheet
- C. two holes, one in the top half and one in the bottom half
- D. four holes, one in each quarter of the sheet

153. A square sheet is folded in half from top to bottom, then folded in half again from left to right. One hole is punched very close to the corner of the small square where the two creases meet, which is the centre of the sheet. When unfolded, where are the holes?

- A. four holes, one near each corner of the sheet
- B. two holes, one on each side of the middle
- C. four holes clustered around the middle of the sheet
- D. four holes in a row along the top edge

154. A square sheet is folded in half from top to bottom, then folded in half again from left to right. One hole is punched very close to the corner of the small square where all four corners of the original sheet are stacked. When unfolded, where are the holes?

- A. four holes clustered around the middle of the sheet
- B. four holes, one near each corner of the sheet
- C. two holes along the top edge of the sheet
- D. four holes in a row along the middle

155. A square sheet is folded in half once, and one hole is punched through both layers. Then, still folded, the sheet is folded in half again, and one more hole is punched in a different spot through all four layers. How many holes does the unfolded sheet have?

- A. 6 holes
- B. 8 holes
- C. 4 holes
- D. 5 holes

156. A long sheet of paper is folded in thirds like a letter, then folded in half, making six layers. Two holes are punched through all six layers, away from every fold. How many holes does the unfolded sheet have?

- A. 6 holes
- B. 8 holes
- C. 10 holes
- D. 12 holes

157. A long sheet of paper is folded in thirds, then folded in thirds again, making nine layers. One hole is punched through all nine layers, away from every fold. How many holes does the unfolded sheet have?

- A. 6 holes
- B. 3 holes
- C. 9 holes
- D. 8 holes

158. Three figures are shown. The first is a small white square. The second is a small white circle. The third is a small white triangle. Which figure is most like the first three?

- A. a small white hexagon
- B. a large white hexagon
- C. a small black hexagon
- D. a large black hexagon

159. Three figures are shown. The first is a small black circle. The second is a large white circle. The third is a medium grey circle. Which figure is most like the first three?

- A. a striped square
- B. a striped triangle
- C. a striped diamond

D. a striped circle

160. Three figures are shown. The first is a square. The second is a long rectangle. The third is a diamond. Which figure is most like the first three?

- A. a triangle
- B. a kite
- C. a pentagon
- D. a hexagon

161. Three figures are shown. The first is a white arrow pointing right. The second is a black arrow pointing right. The third is a striped arrow pointing right. Which figure is most like the first three?

- A. a grey arrow pointing left
- B. a grey arrow pointing right
- C. a grey arrow pointing up
- D. a grey arrow pointing down

162. Three figures are shown. The first shows two black circles. The second shows two black squares. The third shows two black triangles. Which figure is most like the first three?

- A. one black star
- B. three black stars
- C. four black stars
- D. two black stars

163. Three figures are shown. The first is a square. The second is a hexagon. The third is a rectangle. Which figure is most like the first three?

- A. an octagon
- B. a circle

- C. an oval
- D. a crescent moon

164. Three figures are shown. The first is a circle with three stripes. The second is a square with three stripes. The third is a triangle with three stripes. Which figure is most like the first three?

- A. a hexagon with two stripes
- B. a hexagon with four stripes
- C. a hexagon with three stripes
- D. a hexagon with no stripes

165. Three figures are shown. The first is a circle with half of it black. The second is a square with half of it black. The third is a triangle with half of it black. Which figure is most like the first three?

- A. a hexagon with a quarter of it black
- B. a hexagon with half of it black
- C. a hexagon with most of it black
- D. a hexagon that is all black

166. Three figures are shown. The first is two circles touching at one point. The second is two squares touching at one point. The third is two triangles touching at one point. Which figure is most like the first three?

- A. two stars far apart
- B. two stars overlapping
- C. three stars touching at one point
- D. two stars touching at one point

167. Three figures are shown. The first is a row of three squares with only the middle one black. The second is a row of three circles with only the middle one black. The third is a row of three triangles with only the middle one black. Which figure is most like the first three?

- A. three stars in a row, only the middle one black
- B. three stars in a row, only the first one black
- C. three stars in a row, only the last one black
- D. three stars in a row, all three black

168. Three figures are shown. The first is a black dot inside a white circle. The second is a black dot inside a white square. The third is a black dot inside a white triangle. Which figure is most like the first three?

- A. a white dot inside a black hexagon
- B. a black dot inside a white hexagon
- C. a black dot beside a white hexagon
- D. a white hexagon with no dot

169. Three figures are shown. The first is a square. The second is a triangle with three equal sides. The third is a hexagon with six equal sides. Which figure is most like the first three?

- A. a long thin rectangle
- B. a kite with unequal sides
- C. a pentagon with five equal sides
- D. a triangle with one long side

170. Three figures are shown. The first is the letter V. The second is the letter W. The third is the letter Y. Which figure is most like the first three?

- A. the letter F
- B. the letter J
- C. the letter U
- D. the letter R

171. Three figures are shown. The first is the letter T. The second is the letter V. The third is the letter Z. Which figure is most like the first three?

- A. the letter Y
- B. the letter O
- C. the letter S
- D. the letter B

172. Three figures are shown. The first is a large circle with a small circle inside. The second is a large square with a small square inside. The third is a large triangle with a small triangle inside. Which figure is most like the first three?

- A. a large star with a small circle inside
- B. a large star with a small square inside
- C. a large star with nothing inside
- D. a large star with a small star inside

173. Three figures are shown. The first is a white circle with a hole in the middle. The second is a white square with a hole in the middle. The third is a white triangle with a hole in the middle. Which figure is most like the first three?

- A. a white pentagon with a hole in the middle
- B. a white pentagon with a black dot in the middle
- C. a white pentagon filled with stripes
- D. a white pentagon with no marks at all

174. Three figures are shown. The first is a square with four dots inside. The second is a pentagon with five dots inside. The third is a hexagon with six dots inside. Which figure is most like the first three?

- A. a heptagon with six dots inside
- B. a heptagon with five dots inside
- C. a heptagon with eight dots inside
- D. a heptagon with seven dots inside

175. Three figures are shown. The first is a small white circle inside a large black square. The second is a small white triangle inside a large black circle. The third is a small white square inside a large black triangle. Which figure is most like the first three?

- A. a small white star inside a large grey hexagon
- B. a small white star inside a large black hexagon
- C. a small black star inside a large white hexagon
- D. a large white star around a small black hexagon

176. Three figures are shown. The first is a large black triangle with two small white dots. The second is a large black circle with two small white dots. The third is a large black square with two small white dots. Which figure is most like the first three?

- A. a large black hexagon with three small white dots
- B. a large grey hexagon with two small white dots
- C. a large black hexagon with two small white dots
- D. a small black hexagon with two small white dots

Practice Exam 10: Answer Key and Explanations

1. A — Snow is a sign of winter, and flowers popping up is a sign of spring. Each pair links a thing to the season it is best known for. Mittens, sleet, and icicle all belong with cold winter weather, so none of them matches flowers. Spring is the season when blossoms appear.

2. C — A pumpkin is a classic sign of autumn, and a snowman is a classic sign of winter. Both pairs match an object with the season where it is most often seen. A snowman would melt in summer and spring, and morning is a time of day, not a season, so it does not fit.

3. B — A coat is worn in the cold of winter, and a swimsuit is worn in the heat of summer. Each pair matches clothing with its season. Winter cannot be right because swimsuits are not for freezing weather. Sled and scarf are things, not seasons, so they do not complete a clothing-to-season pair.

4. D — A mitten covers a hand, and a boot covers a foot. Both pairs show a piece of winter clothing and the body part it protects. A boot is never worn on the head, knee, or ear, so those three choices fail. Only foot matches the way hand fits mitten, since both are covered snugly.

- 5. C** — Summer and winter are opposite seasons, and hot and cold are opposite temperatures. The pair is built on opposites. Warm is close in meaning to hot, so it is a synonym, not an opposite. Sunny and windy describe weather but are not the opposite of hot, so only cold fits.
- 6. A** — A scarf is worn around the neck to keep it warm, and sunglasses are worn over the eyes to block bright sun. Each pair links an item to the body part it covers. Ears, hands, and feet are covered by other things, such as earmuffs, mittens, and boots, so they are wrong.
- 7. D** — The seasons follow in order: spring leads into summer, and autumn leads into winter. The pair shows what comes next. Spring and summer both come before autumn, so they would run the order backward. Sunrise is part of a day, not a season, so it cannot continue the yearly cycle.
- 8. B** — A rake is a tool used to gather fallen leaves in autumn, and a shovel is a tool used to move snow in winter. Each pair links a tool with the thing it moves. Rain, wind, and sunshine cannot be scooped up with a shovel, so only snow fits, because shoveling is what people do after a storm.
- 9. D** — A kite is made to fly in the wind, and a sled is made to slide over snow. Each pair joins an object with what it does. Flowers bloom, snow can melt, and fish swim, but a sled does none of those things. Only slide describes what a sled is for.
- 10. C** — A carved pumpkin is a symbol of Halloween, and a heart is a symbol of Valentine's Day. Each pair links a symbol to its holiday. Thanksgiving is known for turkey and harvest foods, Canada Day for maple leaves and fireworks, and Labour Day for the end of summer, so none of them uses a heart.
- 11. B** — Warm is a mild temperature and hot is a stronger one. Cool is a mild temperature and cold is the stronger one. The pair shows a step up in strength. Sunny, windy, and wet describe weather, not a stronger version of cool, so they break the pattern. Only cold matches the way hot follows warm.
- 12. A** — January falls in the middle of winter, and August falls in the middle of summer. Each pair links a month with its season. Autumn begins in September and spring begins in March, so neither includes August. A weekend is part of a week, not a season, so summer is the only match.
- 13. D** — A squirrel collects and eats acorns, and a bee collects and drinks nectar from flowers. Each pair links an animal with its food. Bees do not eat snow, bark, or pebbles, so those three choices break the pattern. Nectar is the sweet liquid inside spring flowers, and it fits bee the way acorn fits squirrel.
- 14. A** — A seed grows into a flower, and an egg hatches into a chick. Each pair shows a young beginning and what it turns into. A nest is only a home and a shell is only the outer cover, so neither is what an egg becomes. A farm is a place, not a young animal.
- 15. B** — A hive is the home where bees live, and a den is the home where a bear sleeps through the cold winter. Each pair links a home with the animal that lives in it. Honey, a stinger, and pollen all belong with bees, not with a den, so none of them matches. Only bear fits the way bee fits hive.
- 16. C** — A ruler measures how long something is, and a calendar shows the date. Each pair joins a tool with what it tells us. A calendar says nothing about how heavy something is, how fast it moves, or what color it has, so weight, speed, and color all fail. Only date matches the job of a calendar.

17. B — People wear a red poppy to mark Remembrance Day, and the maple leaf is a symbol of Canada that fills the flags on Canada Day. Each pair links a symbol with its holiday. Halloween, Valentine's Day, and New Year's Day are known for costumes, hearts, and countdowns, not for maple leaves.

18. D — Frost forms because of cold, and sweat appears because of heat. Each pair links an effect with its cause. Snow, wind, and rain can happen outdoors, but they do not make a person sweat the way a hot day does. Only heat is the cause that matches how cold causes frost.

19. A — Bloom means a flower opens up, and wilt means it droops and closes, so they are opposites. Thaw means ice turns soft, so its opposite is freeze. Melt means almost the same as thaw, and drip and warm go along with thawing. They are not opposites, so only freeze completes the pair.

20. C — A whisper is a very quiet sound and a shout is a very loud one, so the pair goes from weakest to strongest. A drizzle is a light rain, and a downpour is the heaviest rain. Breeze and fog are not stronger rain, and mist is as light as drizzle, so only downpour fits.

21. C — The sentence says the lake was very cold in winter, so the water would freeze into ice. Sand and grass are not made from water, and smoke does not come from a frozen lake. Only ice fits the cold clue, because cold weather turns water into a hard, slippery sheet across the top of the lake.

22. A — The word because tells us the wind was a reason to wear warm mittens, so the wind must have been cold. Sweet describes a taste, shy describes a person, and round describes a shape. None of them can describe wind or explain why someone needs mittens, so only cold makes sense in the sentence.

23. B — Skating needs a hard, smooth surface, and cold winter air turns pond water into ice, so the pond freezes. A pond does not boil like a pot on a stove, it cannot burn, and it cannot sing. Only freezes explains why children are able to glide across the pond in the cold season.

24. D — Maple trees drop their leaves in autumn, and a rake is the tool people use to gather them. Snowflakes fall in winter, not from a tree. Waves and seashells are found at the beach and cannot be raked up from under a maple tree. Only leaves matches both the season and the tool.

25. A — People look for shade when the sun feels too strong, so the sun was hot. A summer sun is bright, not dark, and a sun cannot be quiet. Frozen is the opposite of what a summer day feels like. Only hot explains why the family sat under a shady tree to cool off.

26. B — At midnight on New Year's Eve, people shout and celebrate, so cheered fits the party. People cannot melt like ice, and wilted describes a flower that droops. Planted would mean putting seeds in the ground, which no one does during a party at midnight. Only cheered matches how people welcome the new year.

27. C — Fireworks burst in the night sky with flashes of red, gold, and green light, so the word colours fits. Puddles are pools of water on the ground, and crumbs are bits of bread, so neither can fill a sky. Shadows are dark, but the sentence says the fireworks were bright, so only colours works.

28. D — Plants need two things to grow: sunshine and water. The sentence already names sunshine, so the blank needs the second thing. Metal, candy, and smoke do not help seeds sprout, and smoke can

even harm young plants. Only water fits, because spring rain and watering help seeds push up into tall green plants.

29. D — Spring is the season when flowers open, so tulips and daffodils bloom. Freezing happens in cold winter weather, which is the opposite of the arrival of spring. Flowers do not shrink on purpose, and hibernate is something animals such as bears do. Only bloom matches what bulbs do after the warm weather returns.

30. C — Icy roads are slippery, so a careful driver slows down to stay safe. The word because points to slowly as the result of the ice. Loudly, happily, and brightly describe a noise, a mood, and a light, and none of them is a sensible reaction to slippery roads. Slowly is the only choice that protects the riders.

31. A — A group of geese flying in a pattern is called a formation, and the pattern often looks like a V. Fortune means luck or money, fraction means part of a whole number, and fossil means an ancient bone or shell in rock. None of these describes a flying group, so formation is the only word that fits.

32. B — A pumpkin patch grows pumpkins, and a big one could take both arms to lift. Pebbles, pennies, and petals all start with the same letter, but each of them is tiny and light enough to pick up with two fingers. Only pumpkins are heavy enough to make the sentence true.

33. D — Puddles form when snow turns into water, so the snow was melting as spring arrived. Snow does not glow like a lamp, and it does not bark like a dog. Sink would suggest it fell into the ground, but that does not explain how puddles appear. Only melt links warmer March weather to the puddles.

34. C — Squirrels collect acorns in autumn and bury them to eat when snow covers the ground. Gather is the action that saves food for winter. Squirrels do not lose their food on purpose, they have no shops where they could sell acorns, and they cannot paint them. Only gather makes sense with the reason given at the start.

35. A — After a whole year apart, relatives usually feel happy to meet again. Delighted names that joyful feeling. Annoyed, bored, and puzzled describe unhappy or confused feelings that do not fit a warm holiday reunion. The words to see each other also point toward a positive feeling, so only delighted completes the sentence naturally.

36. D — When leaves turn red and gold, the season is shifting from summer to autumn, and that shift is called a change. An echo is a repeated sound, a recipe is a set of cooking steps, and weight tells how heavy something is. None of these can be shown by colourful leaves, so only change fits.

37. B — Frost forms when cold air leaves a thin layer of ice crystals on grass, so it coated each blade and made it sparkle white. Frost cannot chase, carry, or taste anything, because those actions need legs, arms, or a mouth. Only coated describes how ice crystals cover the blades overnight in a thin layer.

38. A — A late frost can kill tender young plants, so a farmer would feel worried. Anxious means worried and fits the clue might ruin the crops. Delighted and grateful are happy feelings that make no sense when crops are in danger. Careless means not paying attention, which does not describe someone who is thinking about protecting the crop.

39. C — Weather that jumps from sunshine to hail in an hour is hard to guess, and unpredictable means just that. Permanent would mean the weather never changes, and identical would mean every hour matches. Peaceful describes a calm day, which does not fit a sudden hailstorm. Only unpredictable matches the quick change described.

40. B — Both blanks must describe a bright afternoon that made people want shade, and sunny and hot do. Frosty and cold belong to winter, and people would want a warm place. Rainy and dry cancel each other out. Dark and cool would make shade unnecessary, so only the first pair makes sense.

41. C — Mittens, a scarf, and a hat are all clothes that keep a person warm in winter. A coat is another warm winter piece. Sandals, shorts, and a swimsuit are all summer clothes made for hot weather, so they belong to a different group. Only coat shares the job of keeping people warm in the cold.

42. B — Winter, spring, and summer are three of the four seasons of the year, and autumn is the fourth. Monday is a day of the week, June is a month, and a snowball is a thing made of snow. None of those three is a season, so only autumn completes the group.

43. A — A sled, skates, and skis are all things used to move over snow or ice in winter. Snowshoes are used for walking across deep snow, so they fit the group. A kite flies in the wind, a canoe floats on water, and a sandal is a summer shoe, so none of them is a winter snow or ice tool.

44. D — Halloween, Easter, and Thanksgiving are all holidays that people celebrate on special days of the year. Canada Day is another holiday, so it belongs in the group. Sunday is a day of the week, and spring and summer are seasons. They are time periods, not holidays, so only Canada Day fits.

45. D — Snow, rain, and hail are all kinds of precipitation, which means water that falls from clouds to the ground. Drizzle is a light form of falling rain, so it joins the group. Wind moves air, sunshine is light, and fog hangs close to the ground without falling, so those three are weather but not precipitation.

46. A — Tulips, daisies, and crocuses are all small flowers that bloom in spring. A violet is another small flower, so it belongs with them. Maple and pine are large trees, and a cactus is a desert plant that does not grow in a spring garden bed, so none of the three fits the group of garden flowers.

47. C — A robin, a sparrow, and a crow are all birds with feathers and wings. A blue jay is also a bird, so it fits. A squirrel is a furry animal that climbs trees, a beetle is an insect, and a salmon is a fish. Those three live in different animal groups from the birds.

48. B — Fireworks, a parade, and a picnic are all things people enjoy outdoors at summer celebrations. A barbecue is another outdoor summer event, so it fits. A blizzard is a winter storm, a sweater is a warm garment, and frostbite is an injury from the cold, so those three belong with winter instead.

49. A — A stopwatch measures time, a ruler measures length, and a thermometer measures temperature, so all three are measuring tools. A scale measures weight, so it belongs with them. A pencil writes, an eraser removes marks, and glue sticks things together, so none of them measures anything. Only scale matches with the first three.

50. D — A rake, a shovel, and a hoe are all garden tools used to work the soil or move leaves. A trowel is a small hand shovel used for planting, so it fits. A hammer is a building tool, a whistle makes sound, and a blanket keeps people warm, so none of them is used in the garden.

51. C — Cinnamon, nutmeg, and ginger are spices that add flavour to holiday baking such as gingerbread. A clove is another dried spice, so it belongs. Carrots are vegetables, butter comes from milk, and honey is a sweet syrup made by bees, so none of those three is a spice. Only clove matches.

52. B — Sprinkle, drizzle, and pour are all words that describe how rain can fall, from light to heavy. A shower is another kind of rain, so it fits. Freeze, bloom, and shiver describe ice, flowers, and cold bodies. They are not ways rain falls, so they do not match the group.

53. B — Frosty, icy, and chilly are all words that describe cold weather. Freezing is a very cold word, so it belongs in the group. Sunny describes bright skies, humid describes damp warm air, and toasty means comfortably hot. Those three have nothing to do with cold, so only freezing fits with the first three words.

54. C — An ornament, tinsel, and a garland are all decorations people hang up for the winter holidays. A wreath is a ring of branches hung on a door, so it fits. A crayon draws, a shovel digs, and a bucket carries water. They are tools, not decorations, so they do not belong.

55. D — January, March, and October are months of the year, and August is another month. Tuesday is a day, a week is seven days long, and winter is a season made up of several months. Those three are different units of time, so only August belongs with the months. Months are the shared idea.

56. A — Maple, oak, and birch are all tall trees with wood trunks. An aspen is also a tree, so it fits. A fern is a leafy plant with no trunk, a tulip is a flower, and moss is a tiny, soft plant that grows low on rocks, so none of the three is a tree.

57. B — A canoe, a kayak, and a raft are all boats that float on lakes and rivers in summer. A rowboat floats too, so it joins them. A skateboard, a bicycle, and a wagon all roll on wheels over the ground, so they are land vehicles that never touch water. Rowboat is the only water vehicle.

58. C — A ladybug, a dragonfly, and a cricket are all insects with six legs. A grasshopper is also an insect with six legs, so it belongs in the group. A sparrow is a bird, a frog is an amphibian, and a worm has no legs at all, so those three are not insects.

59. A — A blizzard, a hurricane, and a tornado are all dangerous storms with strong winds that can cause damage. A thunderstorm is also a violent storm with lightning and heavy rain, so it fits. A drizzle is a gentle rain, a sunrise is the start of the day, and a rainbow is a harmless arc of color.

60. D — In $4 : 11$ and $9 : 16$, the second number is 7 more than the first, since $4 + 7 = 11$ and $9 + 7 = 16$. Adding 7 to 13 gives 20. The choice 26 doubles 13, the choice 23 adds 10, and the choice 18 adds only 5, so none follow the rule.

61. C — In $15 : 6$ and $22 : 13$, the second number is 9 less than the first, since 15 minus 9 is 6 and 22 minus 9 is 13. Taking 9 from 31 gives 22. The choice 40 adds 9, the choice 25 subtracts only 6, and the choice 21 takes away 10, so each breaks the rule.

62. D — In $4 : 20$ and $9 : 45$, the second number is 5 times the first, since 4 times 5 is 20 and 9 times 5 is 45. Multiplying 7 by 5 gives 35. The choice 28 multiplies by 4, the choice 42 multiplies by 6, and the choice 12 adds 5, so none of them follow the rule.

63. B — In $48 : 6$ and $72 : 9$, the second number is one eighth of the first, since 48 divided by 8 is 6 and 72 divided by 8 is 9. Dividing 56 by 8 gives 7. The choice 8 divides by 7, 48 subtracts 8, and 14 divides by 4, so none fit.

64. A — In $90 : 9$ and $130 : 13$, the second number is one tenth of the first, since 90 divided by 10 is 9 and 130 divided by 10 is 13. Dividing 270 by 10 gives 27. The choice 260 subtracts 10, the choice 54 divides by 5, and the choice 2700 multiplies by 10, which goes the wrong way.

65. A — In $12 : 30$ and $20 : 38$, the second number is 18 more than the first, since 12 plus 18 is 30 and 20 plus 18 is 38. Adding 18 to 33 gives 51. The choice 66 doubles 33, the choice 50 adds 17, and the choice 45 adds 12, so only 51 follows the rule for both pairs.

66. D — In $100 : 75$ and $60 : 35$, the second number is 25 less than the first, since 100 minus 25 is 75 and 60 minus 25 is 35. Taking 25 from 90 gives 65. The choice 70 subtracts 20, the choice 115 adds 25 instead, and the choice 45 halves 90, so each one breaks the rule.

67. B — In $8 : 12$ and $18 : 27$, the second number is one and a half times the first, since half of 8 is 4, and 8 plus 4 is 12, while half of 18 is 9, and 18 plus 9 is 27. Adding half of 34, which is 17, gives 51. The choice 68 doubles, and 46 adds 12.

68. C — In $5 : 17$ and $8 : 26$, the rule is times 3, then plus 2, since 5 times 3 plus 2 is 17 and 8 times 3 plus 2 is 26. For 10, times 3 is 30, and plus 2 is 32. The choice 30 skips the plus 2, 22 adds 12, and 33 adds only 3.

69. D — In $6 : 13$ and $9 : 19$, the rule is times 2, then plus 1, since 6 times 2 plus 1 is 13 and 9 times 2 plus 1 is 19. For 15, times 2 is 30, and plus 1 is 31. The choice 30 skips the plus 1, 21 adds 6, and 35 adds 20.

70. C — In $7 : 22$ and $9 : 28$, the rule is times 3, then plus 1, since 7 times 3 plus 1 is 22 and 9 times 3 plus 1 is 28. For 11, times 3 is 33, and plus 1 is 34. The choice 33 skips the extra 1, 36 adds 3 twice, and 22 doubles 11.

71. A — In $5 : 40$ and $3 : 24$, the second number is 8 times the first, since 5 times 8 is 40 and 3 times 8 is 24. Multiplying 11 by 8 gives 88. The choice 77 multiplies by 7, 99 multiplies by 9, and 19 adds 8 instead of multiplying, so none follow the rule.

72. B — In $30 : 14$ and $44 : 21$, the rule is half the number, then minus 1, since half of 30 minus 1 is 14 and half of 44 minus 1 is 21. Half of 58 is 29, and 29 minus 1 is 28. The choice 29 skips the subtraction, and 30 adds one.

73. B — In $6 : 36$ and $9 : 81$, the second number is the first number times itself, since 6 times 6 is 36 and 9 times 9 is 81. Seven times 7 gives 49. The choice 42 multiplies 7 by 6, which fits only the first pair. The choice 14 doubles 7, and 56 multiplies 7 by 8.

74. C — In $16 : 4$ and $36 : 6$, the second number is the square root of the first, because 4 times 4 is 16 and 6 times 6 is 36. The number that multiplies by itself to make 81 is 9. The choice 27 divides by 3, 72 subtracts 9, and 40 halves 81, so none fit both pairs.

75. A — In $6 : 21$ and $9 : 33$, the rule is times 4, then minus 3, since 6 times 4 minus 3 is 21 and 9 times 4 minus 3 is 33. For 13, times 4 is 52, and minus 3 is 49. The choice 52 skips the minus 3, 46 subtracts 6, and 39 triples 13, so each fails.

76. D — In $8 : 11$ and $12 : 19$, the rule is times 2, then minus 5, since 8 times 2 minus 5 is 11 and 12 times 2 minus 5 is 19. For 20, that gives 35. The choice 40 skips the minus 5, 30 adds 10, and 15 only subtracts 5, so each misses the rule.

77. A — In $35 : 12$ and $50 : 17$, the rule is add 1, then divide by 3, since 36 divided by 3 is 12 and 51 divided by 3 is 17. For 65, 66 divided by 3 is 22. The choice 21 skips the add 1, 23 adds 1 afterward, and 55 subtracts 10, so only 22 follows the rule.

78. D — In $3 : 27$ and $5 : 125$, the second number is the first number multiplied by itself three times, since 3 times 3 times 3 is 27 and 5 times 5 times 5 is 125. Four times 4 times 4 is 64. The choice 16 multiplies only twice, the choice 12 triples 4, and the choice 36 squares 6.

79. B — In $11 : 19$ and $25 : 47$, the rule is times 2, then minus 3, since 11 times 2 minus 3 is 19 and 25 times 2 minus 3 is 47. For 30, times 2 is 60, and minus 3 is 57. The choice 60 skips the minus 3, 54 subtracts 6, and 63 adds 3 instead.

80. C — To find the missing number, subtract: 112 minus 47 equals 65, and 65 plus 47 checks back to 112. The choice 159 comes from adding 112 and 47 instead. The choice 64 is one too small, and the choice 75 comes from a slip in the tens place. Neither makes the equation equal 112.

81. B — To find the missing part, subtract 38 from 93, which gives 55, and 93 minus 55 checks to 38. The choice 131 adds the numbers instead. The choice 54 is one too small, and the choice 65 comes from borrowing mistakes in the tens place. Neither one makes the equation equal 38.

82. C — To undo a subtraction, add the number back: 47 plus 26 equals 73, and 73 minus 26 checks to 47. The choice 21 subtracts 26 from 47, which is the wrong operation. The choice 72 is one too small, and the choice 63 is a carrying mistake. Neither one makes the equation equal 47.

83. A — Division undoes multiplication, so 78 divided by 6 gives 13, and 6 times 13 checks back to 78. The choice 72 subtracts 6 from 78, and the choice 84 adds 6. The choice 12 is a nearby fact, since 6 times 12 is 72, which is not 78, so only 13 works.

84. D — To undo a division, multiply: 12 times 7 equals 84, and 84 divided by 7 checks to 12. The choice 19 adds 7 to 12 instead. The choices 91 and 77 are the multiples of 7 on either side of 84, so each gives 13 or 11 when divided by 7, not 12.

85. C — To find the missing number, subtract: 203 minus 125 equals 78, and 125 plus 78 checks back to 203. The choice 328 adds the two numbers instead. The choice 88 is ten too large and the choice 77 is one too small, so neither one makes the sum equal 203.

86. A — Division undoes multiplication, so 136 divided by 8 gives 17, and 8 times 17 checks back to 136. The choice 128 subtracts 8 from 136. The choices 18 and 16 are the neighbors of 17, and 8 times 18 is 144 while 8 times 16 is 128, so neither equals 136.

87. D — To find the divisor, divide 150 by 6, which gives 25, and 150 divided by 25 checks back to 6. The choice 900 multiplies 150 by 6 instead. The choice 24 is one too small, since 150 divided by 24 is not a whole number, and 144 is 150 minus 6.

88. B — Try each sign. Eight times 12 equals 96, so times makes the statement true. Eight plus 12 equals 20, eight minus 12 is below zero, and eight divided by 12 is less than 1, so those signs all miss. Only multiplication grows 8 up to 96, so it is the correct sign.

89. A — Work backward in two steps. First add 7: 38 plus 7 is 45. Then divide by 5: 45 divided by 5 is 9. The choice 45 stops after the first step. The choice 8 gives 40 minus 7, which is 33, and the choice 10 gives 50 minus 7, which is 43. Neither equals 38.

90. C — Work backward in two steps. First take away 11: 25 minus 11 is 14. Then multiply by 3: 14 times 3 is 42. The choice 14 stops after the first step. The choice 39 gives 13 plus 11, which is 24, and the choice 45 gives 15 plus 11, which is 26. Neither equals 25.

91. B — Three equal numbers add to 69, so divide 69 by 3 to get 23, and 23 plus 23 plus 23 checks to 69. The choice 22 gives 66 and the choice 24 gives 72, so each misses 69. The choice 207 multiplies 69 by 3, which is far too large for three added numbers.

92. D — Try each sign. Forty-five divided by 9 equals 5, so divided by makes the statement true. Forty-five plus 9 equals 54, forty-five minus 9 equals 36, and forty-five times 9 equals 405, which are far from 5. Only division shrinks 45 down to 5, so it is the correct sign.

93. B — Work backward in two steps. First take away 13: 61 minus 13 is 48. Then divide by 4: 48 divided by 4 is 12. The choice 48 stops after the first step. The choice 15 gives 60 plus 13, which is 73, and the choice 19 gives 76 plus 13, which is 89. Neither equals 61.

94. A — Try small numbers. When the number is 9, 9 times 9 is 81, and 81 minus 5 is 76, so 9 works. The choice 8 gives 64 minus 5, which is 59, and the choice 10 gives 100 minus 5, which is 95. The choice 71 is 76 minus 5, and it would make the total far too large.

95. D — Try each sign. Twenty-seven minus 13 equals 14, so minus makes the statement true. Twenty-seven plus 13 equals 40, twenty-seven times 13 equals 351, and twenty-seven divided by 13 is a little more than 2. Only subtraction leaves exactly 14, so it is the correct sign here, and the other three signs all miss.

96. C — Work backward in two steps. First divide 60 by 3 to get 20, which is the value inside the brackets. Then take away 7: 20 minus 7 is 13. The choice 20 stops after the first step. The choice 14 gives 21 times 3, which is 63, and the choice 53 subtracts 7 from 60.

97. C — First take away 6: 48 minus 6 is 42. Then split 42 into three equal parts: 42 divided by 3 is 14. The choice 12 gives 36 plus 6, which is 42, and the choice 16 gives 48 plus 6, which is 54. The choice 42 stops after the first step.

98. B — Try small numbers. When the number is 6, 6 times 6 is 36, and 36 times 6 is 216, so 6 works. The choice 8 gives 512 and the choice 9 gives 729, which are both too large. The choice 72 is 216 divided by 3, and it would make a total far too large.

99. D — The numbers go up by 11 each time, since 7 plus 11 is 18, 18 plus 11 is 29, and 29 plus 11 is 40. Adding 11 to 40 gives 51. The choices 50 and 52 are each off by one. The choice 58 adds 18, so none of them keep the same step of 11.

100. A — The numbers go down by 12 each time, since 143 minus 12 is 131, 131 minus 12 is 119, and 119 minus 12 is 107. Taking 12 from 107 gives 95. The choice 97 subtracts 10, the choice 93 subtracts 14, and the choice 83 subtracts 24, so each breaks the steady step of 12.

101. D — The steps are plus 1, plus 2, plus 3, plus 4, so each step grows by 1. The next step is plus 5, and 41 plus 5 is 46. The choice 45 adds 4 and repeats the last step. The choice 47 adds 6, which skips a step, and the choice 50 adds 9, so each breaks the pattern.

102. B — Each number is 5 times the one before it, since 11 times 5 is 55, 55 times 5 is 275, and 275 times 5 is 1375. Multiplying 1375 by 5 gives 6875. The choice 2750 doubles 1375, the choice 1386 adds 11, and the choice 13750 multiplies by 10, so each one breaks the rule of times 5.

103. A — Each number is one third of the one before it, since 1215 divided by 3 is 405, then 135, then 45. One third of 45 is 15. The choice 5 divides by 9, the choice 30 subtracts 15, and the choice 9 divides by 5, so each one breaks the rule of dividing by 3.

104. C — The pattern alternates: plus 3, then minus 2. Eight goes to 11, down to 9, up to 12, down to 10, and up to 13. The next step is minus 2, so 13 becomes 11. The choice 14 adds again, the choice 16 adds 3 twice, and the choice 8 subtracts 5, so none follow the pattern.

105. B — Two patterns are mixed together. The first, third, and fifth numbers are 5, 8, 11, going up by 3. The others are 40, 35, 30, going down by 5. The next number is in the first pattern, so 11 plus 3 is 14. The choice 25 continues the second pattern, and 13 and 16 add 2 and 5.

106. C — The steps are plus 2, plus 4, plus 8, plus 16, so each step doubles. The next step is plus 32, and 41 plus 32 is 73. The choice 72 is one too small, the choice 75 adds 34, and the choice 57 adds 16 again, so each fails to follow the doubling steps.

107. A — Each number is double the one before it plus 1, since 17 times 2 plus 1 is 35, 35 times 2 plus 1 is 71, and 71 times 2 plus 1 is 143. Doubling 143 and adding 1 gives 287. The choices 286 and 288 are each off by one, and 214 adds 71, so none follow the rule.

108. D — Each number is 3 times the one before it minus 2, since 2 times 3 minus 2 is 4, 4 times 3 minus 2 is 10, and 10 times 3 minus 2 is 28. For 28, times 3 is 84 minus 2 is 82. The choice 84 forgets the minus 2, and 56 doubles 28. The choice 80 subtracts 4.

109. C — These are cubes: 1 times 1 times 1 is 1, 2 times 2 times 2 is 8, and 5 times 5 times 5 is 125. The next is 6 times 6 times 6, which is 216. The choice 343 is the cube of 7, which skips a term, and 196 is 14 times 14. The choice 180 breaks the pattern.

110. B — The numbers go down by 9, then 8, then 7, so each step is one smaller. The next step is down by 6, and 66 minus 6 is 60. The choice 59 takes away 7 and repeats the last step. The choice 61 subtracts 5, which skips a step, and the choice 56 subtracts 10, so each breaks the pattern.

111. D — Each number is double the one before it plus 2, since 1 times 2 plus 2 is 4, 4 times 2 plus 2 is 10, and 22 times 2 plus 2 is 46. Doubling 46 and adding 2 gives 94. The choice 92 skips the plus 2, 96 adds 4, and 70 adds 24, so none follow the rule.

112. A — Two patterns are mixed together. The first, third, and fifth numbers are 3, 6, 12, which double each time. The others are 100, 90, 80, which go down by 10. The next number is in the first pattern, so 12 doubled is 24. The choice 70 continues the second pattern, and 18 and 48 do not double.

113. C — The pattern alternates: times 2, then minus 3. Five doubles to 10, drops to 7, doubles to 14, drops to 11, and doubles to 22. The next step is minus 3, so 22 becomes 19. The choice 44 doubles again, which repeats the last step, and the choices 25 and 17 add 3 and subtract 5.

114. B — Each number is the sum of the two before it, since 4 plus 5 is 9, 5 plus 9 is 14, and 9 plus 14 is 23. Adding 14 and 23 gives 37. The choice 32 adds 9, the choice 36 is one too small, and the choice 46 doubles 23, so none follow the add-the-last-two rule.

115. A — The pattern alternates: plus 2, then minus 3. Twenty goes to 22, down to 19, up to 21, down to 18, and up to 20. The next step is minus 3, so 20 becomes 17. The choice 22 adds again, the choice 19 subtracts only 1, and the choice 15 subtracts 5, so none follow the pattern.

116. D — The steps are plus 1, plus 3, plus 5, plus 7, plus 9, so each step grows by 2. The next step is plus 11, and 26 plus 11 is 37. The choice 35 adds 9 and repeats the last step. The choices 38 and 39 add 12 and 13, which skip the odd numbers, so each breaks the pattern.

117. A — The numbers are multiplied by 2, then 3, then 4, so the multiplier grows by 1 each time. The next multiplier is 5, and 48 times 5 is 240. The choice 96 repeats the multiplier 2, the choice 192 uses 4 again, and the choice 60 adds 12, so each breaks the growing pattern.

118. C — Two patterns are mixed together. The first, third, fifth, and seventh numbers are 2, 4, 8, 16, which double each time. The others are 50, 44, 38, which go down by 6. The next number is in the second pattern, so 38 minus 6 is 32. The choice 30 subtracts 8, and 22 and 24 do not fit.

119. D — In the top row, the number of dots goes from one to two while the shade stays black. Applying that change to one white triangle gives two white triangles. One white triangle means nothing

changed, two black triangles changes the shade by mistake, and three white triangles adds too many figures.

120. B — In the top row, the dot jumps from the left side of the square to the right side while the colours stay the same. The same move for the circle puts the black dot on its right. Staying on the left means no move, above is a different move, and swapping colours is a change the top row never makes.

121. B — In the top row, the arrow turns a quarter turn clockwise, from up to right, and nothing else changes. Turning the white triangle the same way moves its tip from up to right. A tip pointing down would be a half turn, a tip pointing left turns the wrong way, and a tip pointing up means no turn.

122. A — In the top row, a pentagon has five sides and a hexagon has six, so the figure gains one side. A square has four sides, so adding one gives five sides, which is a pentagon. A triangle has fewer sides than the square, a hexagon adds two sides, and a heptagon adds three, so none follow the rule.

123. D — In the top row, the circle slides straight across to the right and stays at the same height, from the top left corner to the top right corner. The star should slide the same way, so it moves from the bottom left to the bottom right. The top right changes height, and the other two choices never move across.

124. C — In the top row, the shade gets darker from white to grey to black while the shape stays a circle. The bottom row follows the same shade order, so after white and grey the diamond must be black. A grey or white diamond repeats a shade already used, and a black circle has the wrong shape.

125. A — In the top row, the count goes up by one each step, from one to two to three circles, and the shade stays white. In the bottom row, the black squares are one, then two, so the next is three black squares. Three white squares changes the shade, two black squares repeats the count, and four black squares skips ahead.

126. B — In the top row, the count rises by one and the shade darkens, from one white to two grey to three black. The bottom row has one white and two grey circles, so the next is three black circles. Three white circles gets the shade wrong, two black circles gets the count wrong, and squares use the wrong shape.

127. C — In the top row, both shades swap: the inner square turns from white to black and the outer circle turns from black to white. The same swap for the triangle and hexagon gives a black triangle inside a white hexagon. Leaving both shades alone repeats the first figure, and changing only one shade breaks the rule.

128. D — In the top row, the arrow makes a quarter turn clockwise at each step: up, right, down. The bottom row begins with left, which turns to up, so the next quarter turn clockwise points the arrow right. An arrow pointing left is the start, down would be a half turn from up, and up repeats the middle figure.

129. A — Each row must use the circle, square, and triangle exactly once. The bottom row already has a square and a triangle, so it needs a circle. The third column holds the top row's triangle, so a triangle below it would repeat. A square would repeat in the bottom row, and a hexagon appears nowhere else.

130. D — In the top row, the third figure holds the total of the first two, since 2 plus 1 is 3 dots. In the bottom row, 3 plus 4 is 7, so the missing figure has seven dots. One dot comes from subtracting 4 minus 3, which the top row never does. Five dots and six dots match no sum.

131. B — In the top row, the third figure combines the first two, because a vertical and horizontal line together make a plus sign. In the bottom row, a rising diagonal and a falling diagonal together make two crossing diagonal lines. A plus sign repeats the top answer, a single rising line drops a part, and a triangle is a new shape.

132. C — In the top row, the size shrinks at each step from large to medium to small, and the shade stays the same. The bottom row follows that order with white hexagons, so the last one is small. A medium hexagon repeats the middle figure, a large hexagon repeats the first, and a small black hexagon changes the shade.

133. C — Each row and each column uses the circle, square, and triangle once. Row 3 already has a square and a triangle, so it needs a circle, and column 3 already holds a triangle and a square, which agrees. A square or triangle would repeat in its row, and a star is a shape that appears nowhere else in the grid.

134. A — Each row and column holds one small, one medium, and one large circle. Row 3 already has medium and large, so it needs small, and column 3 already holds a large and a medium. A large or medium circle would repeat a size in its row, and a white circle changes the shade, which stays black everywhere.

135. D — Shape stays the same across a row, and the shade goes white, grey, black in every row. Row 3 holds triangles, and the third spot is the black one. A grey or white triangle repeats a shade already in the row. A black square has the right shade but belongs to row 2, not the triangle row.

136. B — Across each row, the dot moves clockwise to the next side: top, right, bottom, left, then back to top. Row 3 starts at bottom and goes to left, so the next side clockwise is the top. The left side repeats the middle figure, the right side goes the wrong way around, and the bottom side repeats the first figure.

137. C — In every row, the number of sides goes up by one at each step, and each row starts one side higher than the row above. Row 3 reads five sides, then six, so the next has seven sides. Eight sides skips a number, six sides repeats the middle figure, and four sides moves backward in the pattern.

138. A — Row 3 already holds a triangle and a circle, so it needs a square, and it holds grey and black, so it needs white. Column 3 holds a triangle and a circle, and grey and black, which agrees with a white square. A grey or black square repeats a shade, and a white circle repeats a shape.

139. B — A fold in half makes two layers of paper. A single punch goes through both layers, so each layer gets a hole and the opened sheet shows two holes, mirrored across the crease. One hole would be right only if the punch were on the fold itself. Three and four holes need extra layers or punches.

140. D — One fold makes two layers. Each of the two punches goes through both layers, so each punch makes two holes, and 2 punches times 2 layers gives 4 holes on the opened sheet. Two holes forgets the

doubling, three holes miscounts the layers, and six holes would need three layers or three punches, which this sheet does not have.

141. A — Two folds in half make 2 times 2, or four, layers. One punch goes through every layer, so the opened sheet has one hole for each layer, which is four holes. Two holes would count only one fold, and three holes would count three layers instead of four. Eight holes needs a third fold or two punches.

142. B — One fold makes two layers, and each punch goes through both of them. Three punches times two layers gives 6 holes on the opened sheet. Three holes forgets that every punch is doubled, four holes would come from only two punches, and eight holes would need four punches or more folds. Only six matches the sheet in this question.

143. D — Two folds in half make four layers, and each punch goes through all four. Two punches times four layers gives 8 holes on the opened sheet. Four holes counts only one punch, six holes miscounts the layers as three, and sixteen holes would need four folds or many more punches. Eight is the only count that fits this sheet.

144. C — A letter fold stacks the sheet into three layers. One punch passes through all three, so the opened sheet shows one hole in each third, which is three holes. Two holes would treat the sheet as a simple fold in half, and one hole forgets the layers. Six holes would need six layers or two punches.

145. D — Folding left to right makes the two halves mirror each other across the middle crease. A hole near the top appears twice, once in each half and at the same height. One hole would need the punch on the crease. Top and bottom holes use the wrong mirror, and two holes on the left ignore the other half.

146. A — Folding bottom to top mirrors the sheet across the crease, so a hole near the left edge appears once above the crease and once below it, both at the same side. Both above ignores the lower layer. One hole on the crease misplaces the punch. Left and right holes use a side-to-side mirror that was never folded.

147. C — Three folds in half make 2 times 2 times 2, or eight, layers. One punch goes through every layer, so the opened sheet has one hole for each layer, which is eight holes. Six holes miscounts the layers, four holes counts only two folds, and sixteen holes would need a fourth fold or a second punch. Only eight fits.

148. B — A letter fold makes three layers, and each of the two punches goes through all of them. Two punches times three layers gives 6 holes on the opened sheet. Five holes comes from adding instead of multiplying, four holes treats the sheet as folded only in half, and two holes counts the punches and ignores the layers.

149. A — Two folds in half make four layers. Each of the three punches goes through all four layers, so 3 times 4 gives 12 holes on the opened sheet. Six holes uses only two layers, eight holes counts only two punches, and sixteen holes would need four punches. Twelve is the only total that fits three punches and four layers.

150. B — A letter fold gives three layers, and folding that stack in half doubles it to six layers. One punch goes through every layer, so the opened sheet has six holes. Three holes counts only the thirds,

five holes miscounts the stack, and twelve holes would need two punches. Only six matches one punch through six layers.

151. C — Three folds in half make 2 times 2 times 2, or eight, layers. Each of the two punches goes through all eight layers, so 2 times 8 gives 16 holes. Eight holes counts only one punch, twelve holes miscounts the layers as six, and six holes forgets that the folds multiply the layers. Sixteen is the only total that fits.

152. D — Two folds make four layers, so one punch creates four holes. The small square is one quarter of the sheet, and its middle maps to the middle of each quarter, giving one hole per quarter. A row of holes needs a different fold, a centre hole needs a punch on the creases, and two holes forgets a fold.

153. C — Two folds make four layers, so one punch makes four holes. The corner where both creases meet is the centre of the sheet, so each copy of the hole lands close to the centre, one in each quarter, forming a tight cluster. Holes near the corners come from the opposite corner of the folded square. Two holes fail.

154. B — Two folds make four layers, so one punch makes four holes. The stacked corner holds the four original corners of the sheet, so each hole lands near a different corner when the sheet opens. A hole cluster around the middle comes from the opposite corner of the folded square. Two holes forgets a layer, and a row breaks the mirror.

155. A — The first punch goes through two layers, so it makes 2 holes. After the second fold there are four layers, and the second punch goes through all four, making 4 more holes. Adding gives 2 plus 4, which is 6 holes. Eight holes multiplies instead of adding, four holes forgets the first punch, and five holes miscounts the layers.

156. D — The letter fold gives three layers, and folding in half doubles them to six. Each of the two punches goes through every layer, so 2 times 6 gives 12 holes on the opened sheet. Six holes counts only one punch, eight holes miscounts the layers, and ten holes does not come from multiplying punches by layers.

157. C — Folding in thirds makes three layers, and folding that stack in thirds again makes 3 times 3, or nine, layers. One punch goes through every layer, so the opened sheet has nine holes. Six holes treats the second fold as a half, three holes counts only one fold, and eight holes comes from folding in half three times instead.

158. A — The three figures are different shapes, but all are small and all are white. A small white hexagon keeps both shared features. A large white hexagon has the wrong size, a small black hexagon has the wrong shade, and a large black hexagon is wrong in both ways, so only the small white hexagon shares what the first three have.

159. D — The size and shade change from figure to figure, but every one is a circle, so the shape is what they share. A striped circle keeps that shared shape, and its stripes are just another shade. A striped square, triangle, and diamond have corners, so each one breaks the feature that all three given figures have.

160. B — A square, a rectangle, and a diamond each have exactly four straight sides. A kite also has four sides, so it matches. A triangle has three sides, a pentagon has five, and a hexagon has six. Size and shade do not matter here, because the shared feature is the number of sides, and only the kite has four.

161. B — The shade changes from white to black to striped, but each figure is an arrow pointing right, so the direction is what they share. A grey arrow pointing right keeps that direction. Arrows pointing left, up, and down all change the direction, so each breaks the one feature that stays the same in the first three.

162. D — The shapes change, but each figure has exactly two black shapes, so the count of two is shared. Two black stars keeps the count of two and the black shade. One black star has too few, three black stars has too many, and four black stars has twice as many as the first three, so only two black stars matches.

163. A — A square, a hexagon, and a rectangle are made only of straight sides and sharp corners. An octagon also has straight sides only. A circle and an oval are curved all the way around, and a crescent moon has curved edges, so those three break the feature the first three share. Only the octagon belongs with them.

164. C — The shape changes each time, but every figure has exactly three stripes, so the stripe count is what they share. A hexagon with three stripes keeps the count. Two stripes and four stripes are each off by one, and no stripes is missing the feature entirely, so only the three-striped hexagon is most like the first three.

165. B — Each given figure has exactly half of its area shaded black, so the shared feature is the amount of shading. A hexagon with half black keeps it. A quarter black is too little, most of it black is too much, and all black has no white part, so only half black matches the first three.

166. D — Each figure shows exactly two shapes that just touch at one point, so both the count and the touching are shared. Two stars touching keeps both. Stars far apart do not touch, overlapping stars cover each other, and three stars have too many shapes, so each of those breaks something that the first three share.

167. A — The shared feature is that only the middle shape of the three is black. Three stars with only the middle black keep it. Black first or last puts the dark shape in the wrong place, and all three black has no white shapes at all, so those choices break the pattern that the first three share.

168. B — Every figure has a black dot sitting inside a white outer shape. A black dot inside a white hexagon keeps both the shades and the position. Swapping the shades breaks the colour rule, putting the dot beside the hexagon breaks the inside rule, and having no dot leaves out the dot entirely, so only the first choice matches.

169. C — Each given figure has all of its sides the same length. A pentagon with five equal sides keeps that feature. A long thin rectangle has long and short sides, a kite has two different pairs of sides, and a triangle with one long side has unequal sides, so those three break the shared feature.

170. C — Each of the capital letters V, W, and Y looks the same on the left side and the right side, so each is balanced down the middle. The letter U is also balanced that way. The letters F, J, and R each have a part that sticks out on only one side, so they would look different if flipped.

171. A — The capital letters T, V, and Z are drawn using only straight lines with no curves. The letter Y is also made of straight lines only. The letters O, S, and B all have curved parts, so they break the feature the first three share. Only the letter Y belongs with the group.

172. D — In each given figure, the small shape inside is the same kind as the large shape around it. A large star with a small star inside keeps that match. A circle or square inside the star has a different shape from the outside, and nothing inside leaves out the inner shape, so those three break the feature.

173. A — Every given figure has a real hole cut through its middle, so that is the shared feature. A white pentagon with a hole keeps it. A black dot, stripes, and no marks all leave the pentagon solid, because none of them cuts anything out, so each one breaks the feature the first three share.

174. D — In each given figure, the number of dots equals the number of sides: four, five, and six. A heptagon has seven sides, so it needs seven dots. Six and five dots are too few, and eight dots is one too many, so only the heptagon with seven dots keeps the match between the dots and the sides.

175. B — Each figure has a small white shape inside a large black shape of a different kind. A small white star inside a large black hexagon keeps the size, shades, and different shapes. A grey outer shape changes the shade, swapping the shades reverses them, and the last choice reverses both the sizes and the shades.

176. C — Each given figure has three shared features: a large size, a black shade, and two small white dots. A large black hexagon with two small white dots keeps all three. Three dots changes the count, a grey hexagon changes the shade, and a small hexagon changes the size, so each of those breaks one shared feature.