

PRACTICE EXAM 5: 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. Sun is to day as moon is to ____.

- A. morning
- B. summer
- C. cloud
- D. night

2. Star is to sky as fish is to ____.

- A. desert
- B. sea
- C. kitchen
- D. cloud

3. Rocket is to space as boat is to ____.

- A. water
- B. road
- C. forest
- D. tunnel

4. Astronaut is to spaceship as driver is to ____.

- A. pencil
- B. bakery
- C. car
- D. mountain

5. Earth is to planet as Sun is to ____.

- A. moon
- B. star
- C. comet
- D. galaxy

6. Cold is to ice as hot is to ____.

- A. fire
- B. snow
- C. frost
- D. shade

7. Caterpillar is to butterfly as tadpole is to ____.

- A. fish
- B. snake
- C. bird
- D. frog

8. Telescope is to eyes as speaker is to ____.

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

9. Day is to light as night is to ____.

- A. bright
- B. dark
- C. warm
- D. loud

10. Scientist is to laboratory as astronomer is to ____.

- A. bakery
- B. stadium
- C. library
- D. observatory

11. Scale is to weight as ruler is to ____.

- A. length
- B. heat
- C. time
- D. speed

12. Dolphin is to mammal as eagle is to ____.

- A. reptile

- B. insect
- C. bird
- D. fish

13. Liquid is to water as gas is to ____.

- A. air
- B. ice
- C. rock
- D. milk

14. Meteor is to rock as comet is to ____.

- A. glass
- B. wood
- C. sand
- D. ice

15. Microscope is to tiny as telescope is to ____.

- A. soft
- B. far
- C. loud
- D. sweet

16. Galaxy is to stars as forest is to ____.

- A. roads
- B. clouds
- C. trees
- D. rooms

17. Sunrise is to dawn as sunset is to ____.

- A. noon
- B. midnight
- C. morning
- D. dusk

18. Mercury is to hot as Neptune is to ____.

- A. wet
- B. cold
- C. flat
- D. loud

19. Gravity is to pulls as wind is to ____.

- A. pushes
- B. sleeps
- C. melts
- D. glows

20. Fossil is to past as forecast is to ____.

- A. history
- B. memory
- C. future
- D. yesterday

21. The astronaut put on a helmet so she could ____ in space.

- A. gallop
- B. giggle
- C. hiccup
- D. breathe

22. At night, we can see thousands of _____ twinkling in the sky.

- A. shoes
- B. lakes
- C. stars
- D. bridges

23. A rocket needs a lot of _____ to blast off the ground.

- A. fuel
- B. soup
- C. paper
- D. cotton

24. Because of _____, the ball fell back to the ground after Sam tossed it up.

- A. thunder
- B. gravity
- C. shadow
- D. echo

25. Scientists wear goggles in the lab to _____ their eyes from splashes.

- A. scold

- B. tickle
- C. protect
- D. paint

26. The moon is not a star because it does not make its own _____.

- A. sound
- B. light
- C. water
- D. wind

27. The stars look tiny because they are extremely _____ from Earth.

- A. wet
- B. quiet
- C. heavy
- D. distant

28. A telescope can _____ faraway planets so that they look closer.

- A. magnify
- B. hide
- C. freeze
- D. erase

29. Mars is called the red planet because its _____ is covered in rusty red dust.

- A. surface
- B. tail
- C. mirror
- D. engine

30. After the long space mission, the crew was _____ to be back on Earth.

- A. furious
- B. bored
- C. thrilled
- D. puzzled

31. Sofia used a magnifying glass to _____ the tiny veins on the leaf.

- A. erase
- B. examine
- C. bury
- D. throw

32. Ice will _____ into water when the warm Sun shines on it for a long time.

- A. crack
- B. float
- C. spill
- D. melt

33. The comet was so _____ that astronomers could see it without a telescope.

- A. bright
- B. shy
- C. quiet
- D. damp

34. The scientist wrote down every _____ so that she could study the results later.

- A. joke
- B. costume
- C. measurement
- D. dream

35. After the experiment failed three times, Priya decided to ____ her method and try something new.

- A. admire
- B. polish
- C. frame
- D. revise

36. The explorers were ____ about their trip to the planet, so they packed extra supplies.

- A. careless
- B. cautious
- C. sleepy
- D. silly

37. Unlike the bright Sun, the faraway star looked ____ in the sky.

- A. blazing
- B. scorching
- C. enormous
- D. faint

38. The Sun's gravity keeps all of the planets in ____ around it.

- A. boxes

- B. orbit
- C. hiding
- D. puddles

39. On the Moon, the daytime is ____ and the night is ____, so astronauts need special suits.

- A. scorching, freezing
- B. freezing, scorching
- C. scorching, boiling
- D. freezing, icy

40. Although the theory seemed ____ at first, the evidence from many experiments proved it correct.

- A. certain
- B. famous
- C. unlikely
- D. proven

41. Which word belongs with: panther, lynx, cougar?

- A. wolf
- B. eagle
- C. cheetah
- D. whale

42. Which word belongs with: Venus, Mars, Jupiter?

- A. Saturn
- B. Moon
- C. Sun
- D. comet

43. Which word belongs with: beaker, funnel, test tube?

- A. pillow
- B. carpet
- C. curtain
- D. flask

44. Which word belongs with: nose cone, booster, fuel tank?

- A. saddle
- B. capsule
- C. paddle
- D. anchor

45. Which word belongs with: rocket, shuttle, satellite?

- A. kite
- B. canoe
- C. probe
- D. tractor

46. Which word belongs with: rain, hail, sleet?

- A. wind
- B. cloud
- C. fog
- D. snow

47. Which word belongs with: sunrise, noon, sunset?

- A. midnight
- B. spring
- C. Tuesday
- D. July

48. Which word belongs with: sandstone, granite, marble?

- A. puddle
- B. limestone
- C. feather
- D. cotton

49. Which word belongs with: oxygen, helium, nitrogen?

- A. hydrogen
- B. iron
- C. sand
- D. milk

50. Which word belongs with: Sun, Sirius, Polaris?

- A. Moon
- B. Vega
- C. Mars
- D. Earth

51. Which word belongs with: orbit, rotate, revolve?

- A. land

- B. melt
- C. circle
- D. leap

52. Which word belongs with: lava, magma, ash?

- A. glacier
- B. tide
- C. meadow
- D. eruption

53. Which word belongs with: reptile, amphibian, mammal?

- A. nest
- B. planet
- C. bird
- D. feather

54. Which word belongs with: crater, canyon, valley?

- A. mountain
- B. basin
- C. peak
- D. hill

55. Which word belongs with: observe, measure, record?

- A. predict
- B. decorate
- C. forget
- D. borrow

56. Which word belongs with: evaporate, condense, freeze?

- A. shiver
- B. vanish
- C. float
- D. melt

57. Which word belongs with: bat, owl, firefly?

- A. robin
- B. cow
- C. rooster
- D. moth

58. Which word belongs with: lunar, solar, stellar?

- A. rural
- B. cosmic
- C. local
- D. floral

59. Which word belongs with: Saturn, Jupiter, Neptune?

- A. Mars
- B. Earth
- C. Uranus
- D. Venus

60. Two number pairs follow the same rule: $2 : 8$ and $5 : 20$. Which number goes with 6 ($6 : ?$) in the same way?

- A. 24
- B. 18
- C. 30
- D. 12

61. Two number pairs follow the same rule: $3 : 9$ and $4 : 12$. Which number goes with 7 ($7 : ?$) in the same way?

- A. 13
- B. 21
- C. 28
- D. 14

62. Two number pairs follow the same rule: $12 : 6$ and $18 : 9$. Which number goes with 30 ($30 : ?$) in the same way?

- A. 24
- B. 60
- C. 10
- D. 15

63. Two number pairs follow the same rule: $7 : 12$ and $15 : 20$. Which number goes with 9 ($9 : ?$) in the same way?

- A. 16
- B. 45
- C. 14
- D. 4

64. Two number pairs follow the same rule: $15 : 9$ and $22 : 16$. Which number goes with 30 ($30 : ?$) in the same way?

- A. 24
- B. 36
- C. 25
- D. 5

65. Two number pairs follow the same rule: $3 : 15$ and $6 : 30$. Which number goes with 8 ($8 : ?$) in the same way?

- A. 20
- B. 40
- C. 48
- D. 13

66. Two number pairs follow the same rule: $27 : 9$ and $45 : 15$. Which number goes with 60 ($60 : ?$) in the same way?

- A. 20
- B. 42
- C. 30
- D. 180

67. Two number pairs follow the same rule: $9 : 20$ and $14 : 25$. Which number goes with 30 ($30 : ?$) in the same way?

- A. 40
- B. 19
- C. 41
- D. 51

68. Two number pairs follow the same rule: $4 : 40$ and $9 : 90$. Which number goes with 15 ($15 : ?$) in the same way?

- A. 51
- B. 105
- C. 25
- D. 150

69. Two number pairs follow the same rule: $40 : 31$ and $25 : 16$. Which number goes with 50 ($50 : ?$) in the same way?

- A. 59
- B. 45
- C. 41
- D. 31

70. Two number pairs follow the same rule: $3 : 7$ and $5 : 11$. Which number goes with 8 ($8 : ?$) in the same way?

- A. 17
- B. 16
- C. 11
- D. 19

71. Two number pairs follow the same rule: $36 : 9$ and $80 : 20$. Which number goes with 120 ($120 : ?$) in the same way?

- A. 60
- B. 40
- C. 90
- D. 30

72. Two number pairs follow the same rule: $7 : 42$ and $4 : 24$. Which number goes with 9 ($9 : ?$) in the same way?

- A. 63
- B. 54
- C. 45
- D. 15

73. Two number pairs follow the same rule: $15 : 40$ and $32 : 57$. Which number goes with 50 ($50 : ?$) in the same way?

- A. 65
- B. 80
- C. 25
- D. 75

74. Two number pairs follow the same rule: $4 : 7$ and $6 : 11$. Which number goes with 10 ($10 : ?$) in the same way?

- A. 20
- B. 13
- C. 19
- D. 17

75. Two number pairs follow the same rule: $2 : 8$ and $5 : 17$. Which number goes with 7 ($7 : ?$) in the same way?

- A. 21
- B. 23
- C. 25
- D. 19

76. Two number pairs follow the same rule: $4 : 16$ and $7 : 49$. Which number goes with 9 ($9 : ?$) in the same way?

- A. 81
- B. 18
- C. 36
- D. 72

77. Two number pairs follow the same rule: $25 : 6$ and $40 : 9$. Which number goes with 60 ($60 : ?$) in the same way?

- A. 12
- B. 13
- C. 20
- D. 15

78. Two number pairs follow the same rule: $3 : 9$ and $5 : 17$. Which number goes with 8 ($8 : ?$) in the same way?

- A. 32
- B. 24
- C. 29
- D. 27

79. Two number pairs follow the same rule: $10 : 8$ and $20 : 13$. Which number goes with 36 ($36 : ?$) in the same way?

- A. 21
- B. 18
- C. 33
- D. 39

80. Solve: $9 + ? = 23$. What number goes in the blank?

- A. 32
- B. 13
- C. 15
- D. 14

81. Solve: $? \times 6 = 48$. What number goes in the blank?

- A. 8
- B. 42
- C. 54
- D. 9

82. Solve: $53 - ? = 29$. What number goes in the blank?

- A. 82
- B. 34
- C. 23
- D. 24

83. Solve: $63 \div ? = 9$. What number goes in the blank?

- A. 54
- B. 72
- C. 7
- D. 6

84. Solve: $? + 27 = 61$. What number goes in the blank?

- A. 88
- B. 34
- C. 44
- D. 33

85. Solve: $7 \times ? = 63$. What number goes in the blank?

- A. 56
- B. 9
- C. 70
- D. 8

86. Which sign makes this true? $24 ? 4 = 6$

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

87. Solve: $5 \times ? + 4 = 34$. What number goes in the blank?

- A. 30
- B. 7
- C. 5
- D. 6

88. Solve: $3 \times ? - 7 = 20$. What number goes in the blank?

- A. 27
- B. 8
- C. 9

D. 10

89. Which sign makes this true? $6 \ ? \ 7 = 42$

A. times

B. plus

C. minus

D. divided by

90. Solve: $100 - ? - 40 = 35$. What number goes in the blank?

A. 75

B. 60

C. 25

D. 35

91. Solve: $? \div 3 + 6 = 14$. What number goes in the blank?

A. 8

B. 24

C. 42

D. 18

92. Which sign makes this true? $14 \ ? \ 6 = 8$

A. plus

B. times

C. divided by

D. minus

93. Solve: $? \times ? = 49$, and both blanks hold the same number. What number is it?

- A. 8
- B. 6
- C. 7
- D. 9

94. Solve: $36 \div ? + 5 = 11$. What number goes in the blank?

- A. 6
- B. 31
- C. 9
- D. 4

95. Solve: $(? - 3) \times 4 = 28$. What number goes in the blank?

- A. 7
- B. 4
- C. 31
- D. 10

96. Each star stands for the same number, and $\text{star} + \text{star} + \text{star} + \text{star} = 32$. What is star minus 2?

- A. 8
- B. 6
- C. 30
- D. 10

97. Solve: $? \times 8 = 20 + 44$. What number goes in the blank?

- A. 64
- B. 12
- C. 7
- D. 8

98. Each circle stands for the same number. $\text{circle} + \text{circle} + 9 = \text{circle} + \text{circle} + \text{circle} - 1$. What number is the circle?

- A. 9
- B. 8
- C. 10
- D. 11

99. What number comes next? 13, 26, 39, 52, ?

- A. 63
- B. 65
- C. 78
- D. 67

100. What number comes next? 84, 78, 72, 66, ?

- A. 60
- B. 54
- C. 62
- D. 68

101. What number comes next? 8, 13, 18, 23, ?

- A. 27
- B. 29

- C. 31
- D. 28

102. What number comes next? 7, 14, 28, 56, ?

- A. 84
- B. 70
- C. 112
- D. 98

103. What number comes next? 320, 160, 80, 40, ?

- A. 10
- B. 20
- C. 30
- D. 35

104. What number comes next? 243, 81, 27, 9, ?

- A. 6
- B. 1
- C. 3
- D. 4

105. What number comes next? 2, 4, 7, 11, 16, ?

- A. 22
- B. 21
- C. 27
- D. 19

106. What number comes next? 4, 5, 7, 10, 14, ?

- A. 18
- B. 20
- C. 21
- D. 19

107. What number comes next? 10, 20, 15, 25, 20, 30, ?

- A. 40
- B. 25
- C. 35
- D. 30

108. What number comes next? 1, 10, 2, 20, 3, 30, ?

- A. 4
- B. 40
- C. 31
- D. 5

109. What number comes next? 5, 7, 14, 16, 32, 34, ?

- A. 36
- B. 64
- C. 40
- D. 68

110. What number comes next? 30, 27, 23, 18, ?

- A. 15
- B. 14
- C. 12
- D. 13

111. What number comes next? 5, 15, 45, 135, ?

- A. 270
- B. 405
- C. 180
- D. 540

112. What number comes next? 3, 5, 9, 15, 23, ?

- A. 33
- B. 31
- C. 32
- D. 35

113. What number comes next? 8, 3, 16, 6, 32, 12, ?

- A. 24
- B. 64
- C. 18
- D. 48

114. What number comes next? 1, 3, 7, 15, 31, ?

- A. 62
- B. 47
- C. 63

D. 61

115. What number comes next? 3, 6, 4, 8, 6, 12, ?

A. 24

B. 14

C. 8

D. 10

116. What number comes next? 2, 5, 14, 41, ?

A. 122

B. 123

C. 82

D. 68

117. What number comes next? 0, 3, 8, 15, 24, ?

A. 35

B. 33

C. 34

D. 36

118. What number comes next? 2, 3, 5, 8, 13, 21, ?

A. 29

B. 42

C. 34

D. 30

119. In a 2 by 2 grid, the top row shows a white pentagon, then a black pentagon. The bottom row shows a white star, then a missing figure. Which figure completes the grid?

- A. a white star
- B. a black star
- C. a black pentagon
- D. a white pentagon

120. In a 2 by 2 grid, the top row shows one small dot, then two small dots. The bottom row shows one small cross, then a missing figure. Which figure completes the grid?

- A. one small cross
- B. two small dots
- C. three small crosses
- D. two small crosses

121. In a 2 by 2 grid, the top row shows a rocket pointing up, then a rocket pointing down. The bottom row shows a rocket pointing left, then a missing figure. Which figure completes the grid?

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

122. In a 2 by 2 grid, the top row shows a small white triangle, then a large white triangle. The bottom row shows a small black heart, then a missing figure. Which figure completes the grid?

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

123. A grid has two rows of three figures. Row 1 shows one triangle pointing up, two triangles pointing up, and three triangles pointing up. Row 2 shows one triangle pointing down, two triangles pointing down, and a missing figure. Which figure completes the grid?

- A. three triangles pointing up
- B. three triangles pointing down
- C. two triangles pointing down
- D. four triangles pointing down

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

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

125. A grid has two rows of three figures. Row 1 shows a dot at the left of a box, a dot in the center, and a dot at the right. Row 2 shows a star at the top of a box, a star in the center, and a missing figure. Which figure completes the grid?

- A. a star at the bottom
- B. a star at the top
- C. a star in the center
- D. a dot at the bottom

126. In a 2 by 2 grid, the top row shows a circle with one quarter shaded, then a circle with two quarters shaded. The bottom row shows a square with one quarter shaded, then a missing figure. Which figure completes the grid?

- A. a square with one quarter shaded
- B. a square with two quarters shaded

- C. a circle with two quarters shaded
- D. a square with three quarters shaded

127. A grid has two rows of three figures. Row 1 shows one large circle, two medium circles, and three small circles. Row 2 shows one large square, two medium squares, and a missing figure. Which figure completes the grid?

- A. three large squares
- B. two small squares
- C. three small squares
- D. three small circles

128. A grid has two rows of three figures. Row 1 shows a circle, a circle with a dot inside, and a circle with two dots inside. Row 2 shows a square, a square with a dot inside, and a missing figure. Which figure completes the grid?

- A. a square with three dots inside
- B. a circle with two dots inside
- C. a square with one dot inside
- D. a square with two dots inside

129. A grid has two rows of three figures. Row 1 shows a small white circle, a medium white circle, and a large white circle. Row 2 shows a small black square, a medium black square, and a missing figure. Which figure completes the grid?

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

130. A grid has three rows of three figures. Row 1 shows a star, a moon, and a sun. Row 2 shows a moon, a sun, and a star. Row 3 shows a sun, a star, and a missing figure. Which figure completes the grid?

- A. a star
- B. a sun
- C. a moon
- D. a cloud

131. In a 2 by 2 grid, the top row shows the letter L standing upright, then the letter L turned one quarter turn clockwise. The bottom row shows the letter F standing upright, then a missing figure. Which figure completes the grid?

- A. an F turned half way around, upside down
- B. an F turned one quarter turn counterclockwise
- C. an F standing upright, unchanged
- D. an F turned one quarter turn clockwise

132. A grid has two rows of three figures. Row 1 shows a circle, a vertical line, and a circle with a vertical line through its middle. Row 2 shows a square, a horizontal line, and a missing figure. Which figure completes the grid?

- A. a square with a horizontal line through its middle
- B. a square with a vertical line through its middle
- C. a circle with a horizontal line through its middle
- D. a horizontal line alone

133. A grid has two rows of three figures. Row 1 shows a circle with its left half shaded, a circle with its right half shaded, and a fully shaded circle. Row 2 shows a square with its top half shaded, a square with its bottom half shaded, and a missing figure. Which figure completes the grid?

- A. a square with its top half shaded

- B. a fully shaded square
- C. a white square with no shading
- D. a fully shaded circle

134. A grid has three rows of three figures. Row 1 shows a circle, a small dot, and a circle with a dot inside. Row 2 shows a square, a small dot, and a square with a dot inside. Row 3 shows a triangle, a small dot, and a missing figure. Which figure completes the grid?

- A. a triangle with a dot inside
- B. a triangle with no dot
- C. a circle with a dot inside
- D. a square with a dot inside

135. A grid has three rows of three figures. Row 1 shows a black triangle, a white triangle, and a striped triangle. Row 2 shows a white triangle, a striped triangle, and a black triangle. Row 3 shows a striped triangle, a black triangle, and a missing figure. Which figure completes the grid?

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

136. A grid has three rows of three figures. Row 1 shows an arrow pointing up, an arrow pointing right, and an arrow pointing down. Row 2 shows an arrow pointing right, an arrow pointing down, and an arrow pointing left. Row 3 shows an arrow pointing down, an arrow pointing left, and a missing figure. Which figure completes the grid?

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

137. A grid has three rows of three figures. 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. a six-sided shape
- B. a seven-sided shape
- C. an eight-sided shape
- D. a five-sided shape

138. A grid has three rows of three figures. Row 1 shows a white circle, a striped square, and a black triangle. Row 2 shows a white square, a striped triangle, and a black circle. Row 3 shows a white triangle, a striped circle, and a missing figure. Which figure completes the grid?

- A. a black triangle
- B. a black circle
- C. a black square
- D. a striped square

139. A rectangle of paper is folded in half like a book, and one hole is punched through both layers, away from the fold. How many holes are in the paper when it is opened flat?

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

140. A square paper is folded in half once, and two holes are punched through the folded paper, both away from the fold. How many holes are in the paper when it is opened flat?

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

D. 4 holes

141. A square paper is folded in half, and then folded in half again to make a small square. One hole is punched through the small square, away from every fold. How many holes are in the paper when it is opened flat?

A. 4 holes

B. 2 holes

C. 3 holes

D. 8 holes

142. A long strip of paper is folded into thirds, like a letter, so it has three layers. One hole is punched through all three layers. How many holes are in the strip when it is opened flat?

A. 2 holes

B. 6 holes

C. 3 holes

D. 1 hole

143. A square paper is folded in half twice to make a small square. Three holes are punched through the small square, each away from the folds. How many holes are in the paper when it is opened flat?

A. 6 holes

B. 12 holes

C. 8 holes

D. 3 holes

144. A long paper strip is folded in half three times, each fold lying on top of the last, and one hole is punched through the thick folded strip, away from the folds. How many holes are in the strip when it is opened flat?

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

145. A square paper is folded so its left edge lies on top of its right edge. One hole is punched close to the bottom-right corner of the folded paper. Which description matches the opened paper?

- A. Two holes near the top, one in each corner
- B. Two holes near the bottom, one in each corner
- C. One hole near the bottom-right corner
- D. Two holes near the right edge, one high and one low

146. A square paper is folded so its left edge lies on top of its right edge. One hole is punched close to the middle of the right edge of the folded paper. Which description matches the opened paper?

- A. One hole near the middle of the right edge
- B. Two holes, one near the middle of the top and bottom edges
- C. Two holes close together at the center
- D. Two holes, one near the middle of each side edge

147. A square paper is folded so its left edge lies on top of its right edge. One hole is punched close to the fold, halfway up the folded paper. Which description matches the opened paper?

- A. Two holes close together at the center of the sheet
- B. One hole at the center of the sheet
- C. Two holes near the left and right edges
- D. Two holes near the top and bottom edges

148. A square paper is folded so its top edge lies on its bottom edge. One hole is punched near the right edge of the folded paper, halfway along that edge. Which description matches the opened paper?

- A. Two holes near the right edge, both low
- B. One hole near the middle of the right edge
- C. Two holes near the right edge, one high and one low
- D. Two holes, one near each of the left and right edges

149. A square paper is folded so its top edge lies on its bottom edge. Two holes are punched in the folded paper, one near its left edge and one near its right edge, both halfway along those edges. Which description matches the opened paper?

- A. Two holes, one near each side edge, in the middle
- B. Four holes in a row across the middle
- C. Four holes, two at each side, one high one low
- D. Four holes close together around the center

150. A square paper is folded so its top edge lies on its bottom edge, and then folded again so its left edge lies on its right edge. One hole is punched near the corner of the small folded square that is at the center of the original sheet. Which description matches the opened paper?

- A. Four holes, one near each corner of the sheet
- B. One hole at the center of the sheet
- C. Two holes near the center, side by side
- D. Four holes close together around the center

151. A square paper is folded so its top edge lies on its bottom edge, and then folded again so its left edge lies on its right edge. One hole is punched near the corner of the small folded square that was a corner of the original sheet. Which description matches the opened paper?

- A. Four holes close together around the center
- B. Four holes, one near each corner
- C. One hole near the bottom-right corner
- D. Two holes near the bottom corners

152. A square paper is folded so its top edge lies on its bottom edge, and then folded again so its left edge lies on its right edge. One hole is punched near the middle of the bottom edge of the small folded square. Which description matches the opened paper?

- A. Four holes: two near the top, two near the bottom
- B. Four holes, one near each corner of the sheet
- C. Four holes close together around the center
- D. Four holes: two near each of the left and right edges

153. A square paper is folded so its left edge lies on its right edge, and then this narrow paper is folded again so its left edge lies on its right edge. One hole is punched in the middle of the narrow folded paper, away from the folds. Which description matches the opened paper?

- A. Four holes in a column down the center
- B. Four holes in a row, evenly spaced
- C. Four holes, one near each corner
- D. Two holes in the middle, side by side

154. A square paper is folded in half from left to right, and a hole is punched near the fold, close to the top edge. Then the paper is opened, folded so its top edge lies on its bottom edge, and a second hole is punched near the bottom-right corner of the folded paper. How many holes are in the paper when it is opened flat?

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

155. A square paper is folded corner to corner, bringing the top-left corner down to the bottom-right corner, to make a triangle. One hole is punched near the corner of the triangle that has the square corner. Which description matches the opened paper?

- A. Two holes, one top-right and one bottom-left
- B. One hole near the bottom-right corner
- C. Two holes, one top-left and one bottom-right
- D. Two holes close together at the center

156. A square paper is folded in half, folded in half again to make a small square, and then folded corner to corner to make a triangle. One hole is punched through the triangle, away from every fold. How many holes are in the paper when it is opened flat?

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

157. A square paper is folded in half twice to make a small square. One hole is punched near the corner of the small square that is the center of the sheet, and another near the opposite corner, which is a corner of the sheet. Which description matches the opened paper?

- A. Four holes: two at the center, two at the corners
- B. Eight holes: four at the center, four at the corners
- C. Eight holes, all in one row across the sheet
- D. Four holes, one near each corner of the sheet

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

- A. a white circle
- B. a striped square
- C. a white heart
- D. a black circle

159. Three figures are shown. The first is a triangle with three equal sides. The second is a long thin triangle. The third is a triangle with a square corner. Which figure is most like the first three?

- A. a small tilted triangle
- B. a small tilted square
- C. a small tilted circle
- D. a small tilted pentagon

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

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

161. Three figures are shown. The first is a circle. The second is an oval. The third is a crescent moon. Which figure is most like the first three?

- A. a square
- B. a triangle
- C. a star
- D. a ring

162. Three figures are shown. The first is a square drawn with a dashed outline. The second is a circle drawn with a dashed outline. The third is a star drawn with a dashed outline. Which figure is most like the first three?

- A. a heart drawn with a solid outline
- B. a heart drawn with a double outline
- C. a heart drawn with a dashed outline
- D. a heart drawn with a wavy outline

163. Three figures are shown. The first is an arrow pointing up. The second is a triangle pointing up. The third is a rocket pointing up. Which figure is most like the first three?

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

164. Three figures are shown. The first is a small circle in the top-left corner of a box. The second is a small square in the top-left corner of a box. The third is a small star in the top-left corner of a box. Which figure is most like the first three?

- A. a small heart in the top-right corner of a box
- B. a small heart in the top-left corner of a box
- C. a small heart in the bottom-left corner of a box
- D. a small heart in the center of a box

165. Three figures are shown. The first is three stars in a line going up to the right. The second is three squares in a line going up to the right. The third is three circles in a line going up to the right. Which figure is most like the first three?

- A. three hearts in a line going down to the right
- B. three hearts in a straight horizontal line
- C. three hearts in a straight vertical line
- D. three hearts in a line going up to the right

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

- A. a heart with vertical stripes

- B. a heart with diagonal stripes
- C. a heart with horizontal stripes
- D. a heart with small dots

167. Three figures are shown. The first is the letter O. The second is the letter X. The third is the letter H. Which figure is most like the first three?

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

168. Three figures are shown. The first is a large square holding two small circles. The second is a large circle holding two small triangles. The third is a large triangle holding two small squares. Which figure is most like the first three?

- A. a large star holding two small hearts
- B. a large star holding one small heart
- C. a large star holding three small hearts
- D. a large star with two small hearts beside it

169. Three figures are shown. The first is a circle with one quarter shaded. The second is a square with one quarter shaded. The third is a rectangle with one quarter shaded. Which figure is most like the first three?

- A. a hexagon with half of it shaded
- B. a hexagon with one quarter shaded
- C. a hexagon with three quarters shaded
- D. a hexagon with no shading

170. Three figures are shown. The first is two circles side by side, the left one black and the right one white. The second is two squares side by side, the left one black and the right one white. The third is two triangles side by side, the left one black and the right one white. Which figure is most like the first three?

- A. two stars side by side, left white and right black
- B. two stars side by side, both black
- C. two stars side by side, left black and right white
- D. two stars side by side, both white

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

- A. a white heart inside a black star
- B. a black heart inside a white star
- C. a black heart inside a black star
- D. a white heart inside a white star

172. Three figures are shown. The first is five dots in a row. The second is seven dots in a circle. The third is nine dots in a triangle. Which figure is most like the first three?

- A. four dots in a curve
- B. six dots in a curve
- C. eight dots in a curve
- D. three dots in a curve

173. Three figures are shown. The first is a tall thin rectangle. The second is a tall thin oval. The third is a tall thin triangle. Which figure is most like the first three?

- A. a short wide diamond
- B. a large round circle
- C. a short wide rectangle

D. a tall thin diamond

174. Three figures are shown. The first is the letter A. The second is the letter M. The third is the letter T. Which figure is most like the first three?

- A. the letter H
- B. the letter U
- C. the letter S
- D. the letter F

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

- A. a small white star with a dot inside
- B. a large white star with a dot inside
- C. a small black star with a dot inside
- D. a small white star with no dot

176. Three figures are shown. The first is a circle joined to a square. The second is a triangle joined to a circle. The third is a square joined to a triangle. Which figure is most like the first three?

- A. a heart alone
- B. three shapes joined in a row
- C. a heart joined to a square
- D. a heart far from a square

Practice Exam 5: Answer Key and Explanations

1. D — The Sun is the bright object we see during the day, and the moon is the bright object we see at night. Both pairs link a sky object to the time it shines. Morning and summer are times too, but the moon is not their sign. A cloud is no time at all.

2. B — A star is found in the sky, and a fish lives in the sea, so each pair names a living or shining thing and its home. A desert is dry and has no place for swimming fish. A kitchen is a room in a house, and a cloud floats in the sky with the stars, not with fish.

3. A — A rocket travels through space, and a boat travels on water, so each pair joins a vehicle to the place where it moves. A road is for cars and trucks, not boats. A forest has trees and trails, and a tunnel is a covered passage, so neither is the natural home of a boat.

4. C — An astronaut flies a spaceship, and a driver steers a car, so both pairs link a person to the vehicle they control. A pencil is a writing tool, not a vehicle. A bakery is a shop where bread is made, and a mountain is a landform, so neither is something a driver operates.

5. B — Earth is a planet, and the Sun is a star, so each pair names a space object and the group it belongs to. The moon circles a planet, so it is not the Sun's group. A comet is a ball of ice and dust. A galaxy is much bigger, holding billions of stars, so the Sun is not one.

6. A — Ice is a very cold thing, and fire is a very hot thing, so each pair matches a temperature with an example of it. Snow and frost are cold, just like ice, so they repeat the first pair instead of showing the opposite. Shade is a cool, darker place, so it does not fit hot.

7. D — A caterpillar grows and changes into a butterfly, and a tadpole grows and changes into a frog, so both pairs show a young animal and what it becomes. A tadpole lives in water but never turns into a fish. Snakes and birds hatch from eggs already shaped like small versions of their parents.

8. C — A telescope helps the eyes see far-away stars, and a speaker helps the ears hear sound, so each tool is matched with the body part it serves. Hands are for touching and feet are for walking, so neither senses sound. A nose is for smelling, and a speaker makes noise rather than a smell.

9. B — Day is the time when the Sun gives us light, and night is the time when the Sun is gone, so darkness is its partner. Bright is the same as light, so it repeats the first pair. Warm describes heat, not the missing light, and loud describes sound, which has nothing to do with day or night.

10. D — A scientist works in a laboratory, and an astronomer, who studies the stars, works in an observatory, so each pair joins a job to its workplace. A bakery is where a baker works, and a stadium is where athletes play. A library has books, but it is not the special place where telescopes are used to watch space.

11. A — A scale tells us how heavy something is, which is its weight, and a ruler tells us how long something is, which is its length. Each pair matches a tool with what it measures. Heat is measured with a thermometer, time with a clock, and speed with a speedometer, so none of them belongs with a ruler.

12. C — A dolphin belongs to the group of animals called mammals, and an eagle belongs to the group called birds, so each pair joins an animal to its group. A fish lives in water, but an eagle flies. An eagle is not a reptile because it has feathers, and not an insect because it has a backbone.

13. A — Water is a common example of a liquid, and air is a common example of a gas, so each pair joins a state of matter to something in that state. Ice and rock are both solids that keep their shape. Milk, like water, is a liquid that pours, so it repeats the first example instead of matching gas.

14. D — A meteor is a piece of space rock that burns as it falls, and a comet is mostly ice and dust that grows a bright tail near the Sun. Each pair links a space object to its main material. Glass and wood are not found in comets, and sand is a kind of tiny rock grain, like the meteor.

15. B — A microscope helps us look at tiny things, and a telescope helps us look at things that are far away, so each tool is matched with what it helps us see. Soft, loud, and sweet describe touch, sound, and taste, which a telescope cannot improve. Only far describes how distance is changed when we look through the lens.

16. C — A galaxy is a group made of many stars, and a forest is an area made of many trees, so each pair joins a whole to the things it is made of. Roads and rooms are made by people and are not what forests contain. Clouds drift above a forest, but they are not parts that make it up.

17. D — Dawn is the early time when the Sun rises, and dusk is the evening time when the Sun sets, so each event is matched with the name for that part of the day. Noon is the middle of the day, and midnight is the middle of the night, so neither is a sunset. Morning belongs with sunrise.

18. B — Mercury is the planet closest to the Sun, so it gets very hot, and Neptune is one of the planets farthest from the Sun, so it is very cold. Each pair links a planet to its temperature. Wet, flat, and loud are not caused by distance from the Sun, and Neptune has none of them as its main feature.

19. A — Gravity pulls objects toward the ground, and wind pushes against things like sails and kites, so each force is matched with the action it does. Sleeping is something living things do, and wind is not alive. Melting happens when heat turns a solid to liquid, and glowing means giving off light, so neither describes what moving air does.

20. C — A fossil gives us clues about the past, and a forecast tells us what weather is expected in the future, so each item is matched with the time it is about. History, memory, and yesterday all point backward, so they match the fossil instead of the forecast. Only the future looks ahead to what has not yet happened.

21. D — A helmet in space holds the air an astronaut needs, so breathe is the only word that makes sense. Gallop means to run like a horse, and a helmet does not help with that. Giggling and hiccuping are things people can do anywhere, and a helmet is not needed to make them possible in space.

22. C — Twinkling things in the night sky are stars, which shine from far away and seem to flicker. Shoes are worn on feet and cannot twinkle in the sky. Lakes and bridges are on the ground, and neither one hangs overhead or gives off light, so stars is the only word that fits this sentence.

23. A — Fuel burns to make the strong push that lifts a rocket off the ground, so it is the thing a rocket needs a lot of. Soup is food for people and would not make an engine run. Paper and cotton are light materials that burn too weakly and cannot produce the powerful force needed to launch a rocket.

24. B — Gravity is the force that pulls everything toward Earth, so it makes a tossed ball come back down. Thunder is a loud sound from a storm and cannot pull objects. A shadow is a dark shape made when light is blocked, and an echo is a repeated sound, so neither one has the power to move a ball.

25. C — Goggles cover the eyes so that splashes of liquid cannot get in, which means they protect the eyes. To scold means to speak angrily, and no one scolds eyes. Tickling is a light touch that goggles do not cause, and painting would mean adding colour, which would make seeing harder instead of keeping splashes away.

26. B — Stars such as the Sun make their own light, but the moon only shines because it reflects sunlight, so light completes the sentence. Sound is not what makes a star a star, and water and wind do not set stars apart from the moon either. The moon is a rocky ball, not a glowing sun.

27. D — Stars are enormous, but they look tiny because they are so far away, so distant is the word that explains what we see. Wet describes something covered in water, and quiet describes a lack of noise, so neither says anything about size or space. Heavy talks about weight, which does not change how big something appears from far away.

28. A — A telescope uses curved glass to make distant things look bigger and nearer, which is what magnify means. Hide would mean the planets disappear, the opposite of what a telescope does. Freeze is about making something very cold, and erase means to rub something out, so neither tells how a telescope helps us see space.

29. A — The surface of a planet is its outer ground, and Mars has a surface covered in rusty red dust that gives it the red colour. A tail belongs to an animal or a comet, not a planet. A mirror and an engine are made objects, so neither one could be spread across the planet and make it look red.

30. C — After a long time in space, the crew would be very happy to return home, so thrilled fits the sentence. Furious means very angry, and nothing in the sentence gives a reason for anger. Bored would not suit people finishing an exciting mission, and puzzled means confused, which does not match the joyful feeling of coming back to Earth.

31. B — A magnifying glass makes small things look bigger, so Sofia used it to examine, or look closely at, the tiny veins on the leaf. To erase means to rub something out, and veins on a leaf cannot be erased with glass. Burying and throwing are things you do to objects, but a magnifying glass is a tool for seeing.

32. D — When ice gets warm it changes from a solid to a liquid, and the word for that change is melt. Cracking only means breaking into pieces, so the ice would still be ice. Floating describes sitting on top of water, and spilling describes liquid pouring out, so neither one means ice becomes water.

33. A — To be seen without a telescope, a comet must shine strongly, so bright is the word that makes sense. Shy describes a nervous person and cannot describe a space object. Quiet means making little

sound, which has no link to being seen, and damp means slightly wet, which says nothing about being seen.

34. C — Scientists record every measurement so they can compare numbers and study results later. Writing down numbers is part of careful science. A joke is something funny that would not help with an experiment. A costume is something people wear, and a dream happens during sleep, so neither one gives data a scientist could study afterwards.

35. D — Revise means to change something to make it better, which suits Priya's choice to try something new after three failures. Admire means to enjoy looking at something, and a failed method is not something to admire. Polish means to make shiny and frame means to put in a border, so neither describes changing a method.

36. B — Packing extra supplies shows careful planning, so cautious is the best word for explorers who wanted to be ready for problems. Careless means not paying attention, which is the opposite of packing extra. Sleepy describes being tired, and silly describes playful behaviour, so neither explains why the explorers took more supplies than they needed.

37. D — The word unlike tells us the star was the opposite of the bright Sun, so faint, meaning weak and dim, is correct. Blazing and scorching both describe strong light or heat, which would make the star similar to the Sun instead of different. Enormous describes size, but a faraway star seems small, not enormous, from Earth.

38. B — Gravity from the Sun holds each planet on a curved path around it, and that path is called an orbit. Boxes are containers, and planets are not packed inside them. Hiding means staying out of sight, which planets do not do as they travel. Puddles are small pools of water, so they cannot describe the path a planet follows.

39. A — The Moon has no thick air to hold in heat, so sunlit daytime is scorching and the dark night is freezing. The swapped pair puts cold in the day and heat at night, which is backwards. Scorching with boiling gives two hot words, and freezing with icy gives two cold words, so neither pair shows the big change.

40. C — Although signals a surprise: the idea seemed one way at first, but the evidence later proved it correct. Unlikely means not probably true, so it fits that contrast. Certain would mean no doubt, which removes the surprise. Proven says the idea was shown true, so it cannot describe how it seemed at first, and famous says nothing about truth.

41. C — Panther, lynx, and cougar are all wild cats, so cheetah is the matching animal because it is also a large cat. A wolf is a wild dog, so it belongs to a different family. An eagle is a bird that flies, and a whale is a sea mammal, so neither shares the cat group of the named animals.

42. A — Venus, Mars, and Jupiter are all planets that travel around the Sun, so Saturn belongs with them as another planet. The Moon circles Earth rather than the Sun, so it is a natural satellite, not a planet. The Sun is a star, and a comet is an icy body with a tail, so neither is a planet.

43. D — A beaker, a funnel, and a test tube are all pieces of equipment that scientists use in a laboratory, and a flask is another one. A pillow, a carpet, and a curtain are soft items found in a bedroom or living room, so they belong to the home, not to a science lab.

44. B — A nose cone, a booster, and a fuel tank are all parts of a rocket, and a capsule is the part that carries the crew. A saddle belongs on a horse or a bicycle, a paddle belongs on a canoe, and an anchor belongs on a ship, so none of them belongs on a rocket.

45. C — A rocket, a shuttle, and a satellite are all machines built by people to travel in or around space, so a space probe belongs with them. A kite is a toy that flies in the wind, a canoe floats on water, and a tractor works on a farm, so none of those goes into space.

46. D — Rain, hail, and sleet all fall from clouds as water or ice, so snow belongs with them. Wind is moving air, and it does not fall from the sky. A cloud and fog are made of tiny drops that hang in the air instead of falling, so they are not kinds of precipitation.

47. A — Sunrise, noon, and sunset are all moments during one day, so midnight is another time of day. Spring is a season that lasts for months, Tuesday is a whole day of the week, and July is a month, so each of those is a longer stretch of time and does not name a moment within a day.

48. B — Sandstone, granite, and marble are all kinds of rock found in the ground, and limestone is another kind of rock. A puddle is a small pool of water, a feather grows on a bird, and cotton comes from a plant, so none of those is a rock or a hard material formed in the earth.

49. A — Oxygen, helium, and nitrogen are all gases that spread out to fill the space around them, and hydrogen is also a gas. Iron and sand are solids that keep their shape, and milk is a liquid that pours, so none of them is a gas like the three words in the question.

50. B — The Sun, Sirius, and Polaris are all stars that make their own light, and Vega is also a star. The Moon is a rocky ball that only reflects sunlight, while Mars and Earth are planets that circle the Sun, so none of those three makes its own light the way a star does.

51. C — Orbit, rotate, and revolve are all words for moving around in a circle or around a centre, so circle fits as another turning word. To land means to come down, to melt means to change from solid to liquid, and to leap means to jump, so none of those describes going round and round.

52. D — Lava, magma, and ash are all things connected to a volcano, and an eruption is the event in which they burst out. A glacier is a huge sheet of ice, a tide is the rising and falling of the sea, and a meadow is a grassy field, so none of those has anything to do with volcanoes.

53. C — Reptile, amphibian, and mammal are all names of large groups of animals, and bird is another such group. A nest is a home that some animals build, a feather is a body part of birds, and a planet is not an animal at all, so none of them names a whole group of animals.

54. B — A crater, a canyon, and a valley are all low places in the land that dip below the ground around them, and a basin is another dip in the earth. A mountain, a peak, and a hill all rise above the land, so they are high places and belong to the opposite group.

55. A — Observe, measure, and record are all steps scientists take while they study something, and predict, which means to say what will probably happen, is another science step. Decorate means to make something pretty, forget means to lose a memory, and borrow means to take something for a while, so none of them is a step in an experiment.

56. D — Evaporate, condense, and freeze are all ways that matter changes from one state to another, such as liquid to gas or liquid to solid, and melt is the change from solid to liquid. Shiver means to shake from cold, vanish means to disappear, and float means to rest on water, so none of those is a change of state.

57. D — A bat, an owl, and a firefly are all animals that are active at night, and a moth also flies and feeds after dark. A robin and a rooster are birds that wake up with the morning sun, and a cow spends its day grazing, so each of those three is active in daylight instead.

58. B — Lunar means about the Moon, solar means about the Sun, and stellar means about the stars, so cosmic, which means about outer space, belongs with them. Rural means about the countryside, local means about the nearby area, and floral means about flowers, so none of those words describes something from space like the three words given.

59. C — Saturn, Jupiter, and Neptune are huge planets made mostly of gas and liquid, with no solid ground to stand on, and Uranus is another giant like them. Mars, Earth, and Venus are smaller rocky planets with solid surfaces, so they belong to a different group even though all of these worlds orbit the Sun.

60. A — Each pair follows the rule multiply by 4, because 2 times 4 is 8 and 5 times 4 is 20. So 6 times 4 is 24. The choice 12 comes from adding 6, which fails for 2 and 8. The choices 18 and 30 come from multiplying by 3 or 5, and neither works for both pairs.

61. B — Both pairs triple the first number, since 3 times 3 is 9 and 4 times 3 is 12. So 7 gives 21. The choice 13 comes from adding 6, which works for 3 and 9 but fails for 4 and 12. The choice 28 multiplies by 4, and 14 only doubles, so neither matches both given pairs.

62. D — Each pair cuts the first number in half, because 12 divided by 2 is 6 and 18 divided by 2 is 9. Half of 30 is 15. Taking away 6, which gives 24, works for 12 but fails for 18 and 9. Doubling gives 60, which moves in the wrong direction, and 10 divides by 3.

63. C — Each pair adds 5, because 7 plus 5 is 12 and 15 plus 5 is 20. Adding 5 to 9 gives 14. The choice 4 subtracts 5 and goes in the wrong direction. The choice 16 adds 7, which does not match either pair, and 45 multiplies by 5, which would turn 7 into 35 instead of 12.

64. A — Each pair subtracts 6, because 15 minus 6 is 9 and 22 minus 6 is 16. Subtracting 6 from 30 gives 24. The choice 36 adds 6 and goes the wrong way. The choice 25 subtracts 5, which would turn 15 into 10, and 5 divides by 6, which does not fit either pair.

65. B — Both pairs multiply by 5, because 3 times 5 is 15 and 6 times 5 is 30. So 8 times 5 equals 40. The choice 20 adds 12, which works for 3 and 15 but not for 6 and 30. The choices 48 and 13 come from multiplying by 6 and adding 5, and neither rule matches both pairs.

66. A — Each pair divides the first number by 3, because 27 divided by 3 is 9 and 45 divided by 3 is 15. Dividing 60 by 3 gives 20. The choice 42 subtracts 18, which works for 27 but not for 45. Dividing by 2 gives 30, and multiplying by 3 gives 180, so neither matches the given pairs.

67. C — Each pair adds 11, because 9 plus 11 is 20 and 14 plus 11 is 25. Adding 11 to 30 gives 41. The choice 40 adds only 10, which is close but fails for both pairs. The choice 19 subtracts 11, and 51 adds 21, so neither one follows the rule shown by 9 and 20 or 14 and 25.

68. D — Each pair multiplies by 10, because 4 times 10 is 40 and 9 times 10 is 90. Ten times 15 is 150. The choice 51 adds 36, which works for 4 and 40 but not for 9 and 90. The choice 105 swaps digits around, and 25 adds 10, so neither follows the rule in both given pairs.

69. C — Each pair subtracts 9, because 40 minus 9 is 31 and 25 minus 9 is 16. Subtracting 9 from 50 gives 41. The choice 59 adds 9 and moves the wrong way. The choice 45 subtracts 5, which would turn 40 into 35, and 31 is just the first answer copied, so neither one fits the rule shown.

70. A — Each pair doubles the first number and then adds 1, because 3 times 2 plus 1 is 7 and 5 times 2 plus 1 is 11. For 8, double it to get 16 and add 1 to make 17. The choice 16 forgets the added 1. The choice 11 adds 3, and 19 adds 3 after doubling.

71. D — Each pair divides the first number by 4, because 36 divided by 4 is 9 and 80 divided by 4 is 20. Dividing 120 by 4 gives 30. The choice 60 divides by 2 and 40 divides by 3, and neither fits both pairs. The choice 90 subtracts 30, which would turn 36 into 6 instead of 9.

72. B — Each pair multiplies by 6, because 7 times 6 is 42 and 4 times 6 is 24. So 9 times 6 equals 54. The choice 63 multiplies by 7, and 45 multiplies by 5, and neither one turns 7 into 42 or 4 into 24. The choice 15 adds 6, which gives only 13 for 7, not 42.

73. D — Each pair adds 25, because 15 plus 25 is 40 and 32 plus 25 is 57. Adding 25 to 50 gives 75. The choices 65 and 80 add 15 and 30, which do not match either pair. The choice 25 subtracts 25 and goes the wrong way, so only 75 follows the rule shown by both number pairs.

74. C — Each pair doubles the first number and then subtracts 1, because 4 times 2 minus 1 is 7 and 6 times 2 minus 1 is 11. Doubling 10 gives 20, and taking away 1 gives 19. The choice 20 forgets the subtraction, and 13 adds 3. The choice 17 subtracts 3, so neither matches both pairs.

75. B — Each pair triples the first number and then adds 2, because 2 times 3 plus 2 is 8 and 5 times 3 plus 2 is 17. For 7, triple it to get 21 and add 2 to make 23. The choice 21 forgets the added 2. The choice 25 adds 4, and 19 subtracts 2, so neither matches the pairs.

76. A — Each pair multiplies the first number by itself, because 4 times 4 is 16 and 7 times 7 is 49. So 9 times 9 equals 81. The choice 18 doubles 9, and 36 multiplies 9 by 4, which works only for 4 and 16. The choice 72 multiplies by 8, so 81 is the only answer.

77. B — Each pair divides the first number by 5 and then adds 1, because 25 divided by 5 plus 1 is 6 and 40 divided by 5 plus 1 is 9. Dividing 60 by 5 gives 12, and adding 1 makes 13. The choice 12 forgets the added 1. The choices 20 and 15 divide by 3 and 4.

78. C — Each pair multiplies the first number by 4 and then subtracts 3, because 3 times 4 minus 3 is 9 and 5 times 4 minus 3 is 17. For 8, multiplying gives 32, and subtracting 3 makes 29. The choice 32 forgets the subtraction. The choices 24 and 27 use the wrong multiplier or subtract too much, so they fail.

79. A — Each pair halves the first number and then adds 3, because half of 10 is 5, plus 3 makes 8, and half of 20 is 10, plus 3 makes 13. Half of 36 is 18, and adding 3 gives 21. The choice 18 forgets the added 3. The choices 33 and 39 subtract or add 3 to 36 without halving.

80. D — To find the missing number, subtract 9 from 23, which gives 14, and checking shows 9 plus 14 equals 23. The choice 32 adds 9 and 23 instead of subtracting. The choices 13 and 15 are each one away from the right answer and give sums of 22 and 24, so only 14 works.

81. A — Division undoes multiplication, so divide 48 by 6 to get 8, and 8 times 6 is 48. The choice 42 subtracts 6 from 48, and 54 adds 6, but neither one is how a missing factor is found. The choice 9 gives 9 times 6, which equals 54, so it overshoots 48 by 6.

82. D — The missing number is the amount taken away, so subtract 29 from 53 to get 24, and 53 minus 24 is 29. The choice 82 adds 53 and 29, which is the wrong operation. The choices 34 and 23 leave 19 and 30 when subtracted from 53, so neither leaves 29.

83. C — To find the divisor, divide 63 by 9, which gives 7, and 63 divided by 7 is 9. The choice 54 subtracts 9 from 63, and 72 adds 9, but neither is a division fact. The choice 6 gives 63 divided by 6, which is not even a whole number, so it cannot produce 9.

84. B — Subtract 27 from 61 to find the missing number, which is 34, because 34 plus 27 equals 61. The choice 88 adds 27 and 61 together, which is the wrong operation. The choices 44 and 33 are too large or too small, since 44 plus 27 is 71 and 33 plus 27 is 60, so neither reaches 61.

85. B — Divide 63 by 7 to find the missing factor, which is 9, because 7 times 9 equals 63. The choice 56 subtracts 7 from 63 and 70 adds 7, which are not multiplication facts. The choice 8 gives 7 times 8, which is 56, and that falls 7 short of 63, so only 9 fits.

86. A — Division works, because 24 divided by 4 equals 6. Adding gives 28, subtracting gives 20, and multiplying gives 96, and none of those equals 6. Trying each sign on 24 and 4 shows that divided by is the only one that completes the statement, so the other three signs all give results much larger than 6.

87. D — Undo the steps in reverse order: subtract 4 from 34 to get 30, then divide by 5 to get 6. Check: 5 times 6 is 30, plus 4 is 34. The choice 30 stops after the first step, and 7 gives 39, which is too big. The choice 5 gives 29, which is too small.

88. C — Work backward: add 7 to 20 to get 27, then divide 27 by 3 to get 9. Check: 3 times 9 is 27, minus 7 is 20. The choice 27 stops after the first step. The choice 8 gives 17 and the choice 10 gives 23, so neither makes the equation equal 20.

89. A — Only multiplication works, because 6 times 7 equals 42. Adding gives 13, subtracting gives a number below 1, and dividing gives less than 1, and none of those is 42. Checking each sign on the two

numbers shows that times is the single sign that makes the statement true, and the others give far smaller results.

90. C — Take the 40 off first: 100 minus 40 is 60, and the blank must remove enough to leave 35, so 60 minus 35 gives 25. Check: 100 minus 25 is 75, minus 40 is 35. The choice 75 forgets the 40, and 60 forgets the 35, and 35 only repeats the final answer, so none of them works.

91. B — Work backward: subtract 6 from 14 to get 8, then multiply by 3 to get 24. Check: 24 divided by 3 is 8, plus 6 is 14. The choice 8 stops after one step. The choice 42 multiplies 14 by 3 without removing the 6, and 18 gives 6 plus 6, which is only 12.

92. D — Subtracting works, because 14 minus 6 equals 8. Adding 14 and 6 makes 20, multiplying makes 84, and dividing 14 by 6 gives a little over 2, so none of those equals 8. Trying every sign on the numbers 14 and 6 proves that minus is the only one that completes the statement.

93. C — A number times itself equals 49 only when it is 7, because 7 times 7 is 49. The choice 8 gives 64, which is too large, and 6 gives 36, which is too small. The choice 9 gives 81, so no number except 7 fits both blanks. Only 7 times itself gives exactly 49.

94. A — Subtract 5 from 11 to get 6, which is what 36 divided by the blank must equal, so the blank is 6 because 36 divided by 6 is 6. The choice 31 subtracts 5 from 36. The choice 9 gives 4 plus 5, which is 9, and 4 gives 9 plus 5, which is 14, so both miss.

95. D — Divide 28 by 4 to find what is inside the brackets, which is 7, then add 3 to get 10. Check: 10 minus 3 is 7, and 7 times 4 is 28. The choice 7 stops one step early. The choice 4 subtracts 3 from 7, and 31 adds 3 to 28, which ignores the multiplication.

96. B — Four equal stars add to 32, so one star is 32 divided by 4, which is 8. The question asks for star minus 2, so 8 minus 2 is 6. The choice 8 finds the star but forgets to subtract 2. The choice 30 subtracts 2 from 32 directly, and 10 adds 2 to the star instead.

97. D — First add 20 and 44 to get 64, then divide 64 by 8 to get 8, because 8 times 8 is 64. The choice 64 is the sum from the first step but not the missing number. The choice 7 gives 56, which is too small, and 12 gives 96, which is too large.

98. C — Both sides have two circles, so remove them: 9 on the left must equal one circle minus 1 on the right. Adding 1 to 9 gives 10. Check: both sides equal 29 when the circle is 10. The choices 9 and 11 are off by one, and 8 is off by two.

99. B — Each number is 13 more than the one before it: 13, 26, 39, 52. Adding 13 to 52 gives 65. The choice 63 adds 11, and 78 adds 26, so each jumps by the wrong amount. The choice 67 adds 15, which would break the steady pattern of 13 that every earlier pair of numbers follows.

100. A — The numbers go down by 6 each time: 84, 78, 72, 66. Subtracting 6 from 66 gives 60. The choice 54 subtracts 12, which skips a step. The choice 62 subtracts only 4, and 68 goes up instead of down, so neither continues the steady pattern of taking away 6.

101. D — Each number is 5 greater than the one before it: 8, 13, 18, 23. Adding 5 to 23 gives 28. The choice 27 adds 4, and 29 adds 6, so both break the steady step of 5. The choice 31 adds 8, which is a bigger jump that does not match any gap in the pattern.

102. C — Each number is double the one before it: 7, 14, 28, 56. Doubling 56 gives 112. The choice 84 adds 28, which is the gap from 28 to 56, and 70 adds 14, but the gaps in this series keep growing. The choice 98 adds 42, which does not match doubling, so only 112 follows the rule.

103. B — Each number is half the one before it: 320, 160, 80, 40. Half of 40 is 20. The choice 30 subtracts 10, which does not match the earlier drops of 160, 80, and 40. The choice 10 halves twice, and 35 subtracts only 5, so neither continues the pattern of cutting each number in half.

104. C — Each number is one third of the one before it: 243, 81, 27, 9. Dividing 9 by 3 gives 3. The choice 6 subtracts 3, which is a steady step that does not match the earlier drops of 162, 54, and 18. The choices 1 and 4 divide by 9 or subtract 5, and neither fits the pattern.

105. A — The gaps grow by 1 each time: plus 2, plus 3, plus 4, plus 5. The next gap is plus 6, so 16 plus 6 is 22. The choice 21 uses a gap of 5 again, and 27 uses a gap of 11. The choice 19 uses a gap of 3, which repeats an earlier step.

106. D — The gaps grow by 1 each time: plus 1, plus 2, plus 3, plus 4. The next gap is plus 5, so 14 plus 5 is 19. The choice 18 uses a gap of 4, which repeats the last gap. The choices 20 and 21 use gaps of 6 and 7, which skip ahead too quickly for this pattern.

107. B — The pattern alternates between adding 10 and subtracting 5: 10 to 20, 20 to 15, 15 to 25, 25 to 20, 20 to 30. The next step takes away 5, so 30 minus 5 is 25. The choice 40 adds 10 again, and 35 adds 5, so both ignore the subtraction. The choice 30 repeats the last number.

108. A — Two patterns are mixed together. The numbers in the first, third, and fifth places go 1, 2, 3, and the others go 10, 20, 30. The next number belongs to the counting pattern, so it is 4. The choice 40 continues the tens pattern at the wrong time. The choice 31 adds 1 to 30, and 5 skips a number.

109. D — The pattern alternates between adding 2 and doubling: 5 plus 2 is 7, 7 doubled is 14, 14 plus 2 is 16, 16 doubled is 32, and 32 plus 2 is 34. The next step doubles, so 34 doubled is 68. The choice 36 adds 2 again, and 64 doubles 32, while 40 adds 6 to 34.

110. C — The numbers go down by amounts that grow by 1: minus 3, minus 4, minus 5. The next amount is 6, so 18 minus 6 is 12. The choice 15 subtracts 3 again, and 14 subtracts 4, so both reuse earlier steps. The choice 13 subtracts 5, which repeats the last step instead of growing to 6.

111. B — Each number is 3 times the one before it: 5, 15, 45, 135. Tripling 135 gives 405. The choice 270 doubles 135, and 180 adds 45, so neither continues the rule of multiplying by 3. The choice 540 multiplies by 4, which is too large a jump for every earlier step shown in the series.

112. A — The gaps go up by 2 each time: plus 2, plus 4, plus 6, plus 8. The next gap is plus 10, so 23 plus 10 is 33. The choice 31 uses a gap of 8, which repeats the last gap. The choice 32 uses a gap of 9, and 35 uses a gap of 12.

113. B — Two patterns are mixed together. The first, third, and fifth numbers double: 8, 16, 32. The others also double: 3, 6, 12. The next number belongs to the first pattern, so it is 32 doubled, which is 64. The choice 24 doubles 12, which is the wrong pattern. The choices 18 and 48 add 6 and 16.

114. C — Each number is double the one before it plus 1: 1 doubled plus 1 is 3, 3 doubled plus 1 is 7, and so on. Doubling 31 gives 62, and adding 1 makes 63. The choice 62 forgets the extra 1. The choice 47 adds 16, which copies the last gap, and 61 subtracts 1 instead of adding it.

115. D — The pattern alternates between doubling and subtracting 2: 3 doubled is 6, 6 minus 2 is 4, 4 doubled is 8, 8 minus 2 is 6, and 6 doubled is 12. The next step subtracts 2, so 12 minus 2 is 10. The choice 24 doubles again, and 14 adds 2, while 8 subtracts 4.

116. A — Each number is triple the one before it, minus 1: 2 tripled is 6, minus 1 is 5, and 5 tripled is 15, minus 1 is 14. Tripling 41 gives 123, and taking away 1 makes 122. The choice 123 forgets to subtract 1. The choice 82 only doubles 41, and 68 adds 27, so neither follows the rule.

117. A — The gaps grow by 2 each time: plus 3, plus 5, plus 7, plus 9. The next gap is plus 11, so 24 plus 11 is 35. The choice 33 adds a gap of 9, which repeats the last gap, and 34 adds 10, which is not odd like the others. The choice 36 adds 12, which is too large.

118. C — Each number is the sum of the two numbers before it: 2 plus 3 is 5, 3 plus 5 is 8, 5 plus 8 is 13, and 8 plus 13 is 21. So 13 plus 21 is 34. The choice 29 adds 8 to 21, and 42 doubles 21, while 30 adds only 9.

119. B — Reading across each row, the shape stays the same and only the colour changes from white to black. The top row does this with pentagons, so the bottom row must do it with stars. A black star is the missing figure. A white star repeats the first star, and the pentagons bring in the wrong shape.

120. D — Across the top row, the number of items goes up from one to two while the kind of item stays the same. The bottom row must follow the same rule with crosses, so the missing figure is two small crosses. One cross repeats the first figure, two dots change the shape, and three crosses add too many.

121. A — In the top row, the rocket flips to point the opposite way, so up becomes down. The bottom row follows the same rule, and the opposite of left is right, so the missing figure is a rocket pointing right. A rocket pointing left would be no change, and up or down is only a quarter turn instead of a flip.

122. D — Across the top row, the shape and colour stay the same while the size grows from small to large. The bottom row must keep the black heart and also grow in size, so the missing figure is a large black heart. A small black heart shows no change, and the two white hearts change the colour.

123. B — Each row counts up by one: one, two, then three. Row 2 keeps its triangles pointing down, so the third figure must have three triangles pointing down. Three triangles pointing up would copy the third figure from Row 1 and ignore the direction. Two triangles repeat the middle figure, and four triangles count past the pattern.

124. C — In the top row, a triangle has three sides and a square has four, so the second shape has one more side. A pentagon has five sides, and one more side makes six. The missing figure has six sides. Seven or eight sides add too many sides, and four sides would take sides away.

125. A — In Row 1 the dot moves in one direction across the box: left, center, right. Row 2 uses the same idea but moves up and down: top, center, then bottom. The missing figure is a star at the bottom. A star at the top or center repeats an earlier position, and a dot at the bottom uses the wrong shape.

126. B — The top row adds one more shaded quarter while keeping the same shape. The bottom row has a square with one shaded quarter, so adding one more gives a square with two quarters shaded. One quarter would be no change. A circle changes the shape, which stays the same in a row, and three quarters adds two quarters.

127. C — Row 1 has two changes at once: the number goes up by one and the size gets smaller. Row 2 follows the same pattern with squares, so the third figure has three squares that are small. Three large squares ignore the size change, two small squares ignore the count, and three small circles change the shape.

128. D — Each row adds one more dot to the same shape as it moves from left to right: none, one, then two. Row 2 begins with a square, so the third figure is a square with two dots inside. Three dots goes beyond the pattern, one dot repeats the middle figure, and a circle is the wrong shape for Row 2.

129. B — Both rows grow in size from small to medium to large, and the shape and colour stay the same inside each row. Row 2 uses black squares, so the missing figure is a large black square. A large white square changes the colour, a medium black square repeats the middle figure, and a large black circle changes the shape.

130. C — Each shape must appear once in every row and once in every column. Row 3 already has a sun and a star, so the moon is missing. The third column also needs a moon. A star or a sun would repeat a figure in the row, and a cloud is not part of the set.

131. D — The top row turns the letter a quarter turn clockwise, so the bottom row must turn the F the same way and the same amount. An F turned half way around has made two quarter turns. An F turned counterclockwise goes the opposite direction, and an F standing upright shows no turn at all.

132. A — In each row, the third figure combines the first two figures by placing the line on the shape. Row 2 has a square and a horizontal line, so the answer is a square with a horizontal line through its middle. The vertical line and the circle belong to Row 1, and the line alone leaves the square out.

133. B — In Row 1 the first two halves, left and right, together make a whole circle that is fully shaded. Row 2 uses the top and bottom halves of a square, which together cover the whole square, so the third figure is a fully shaded square. The top half alone repeats the first figure, and a circle is the wrong shape.

134. A — In every row, the third figure joins the first two: the shape from the left is combined with the dot from the middle. Row 3 begins with a triangle, so the missing figure is a triangle with a dot inside. A triangle with no dot leaves out the dot, and the other two belong to Rows 1 and 2.

135. C — Every row and every column must contain one black, one white, and one striped triangle. Row 3 already has striped and black triangles, so the missing one is white. A black or striped triangle would repeat a colour in the row, and the third column already holds black and striped, so a white triangle fits. A square changes the shape.

136. D — Within each row the arrow turns a quarter turn clockwise each step: up, right, down, then left, then back to up. Row 3 starts at down and goes to left, so the next quarter turn clockwise returns to up. The missing figure is an arrow pointing up. Right, down, and left each repeat a direction used earlier.

137. B — In every row, each shape has one more side than the shape before it. Row 3 goes from a pentagon with five sides to a hexagon with six sides, so the next shape has seven sides. Six sides repeats the hexagon and five sides repeats the pentagon. Eight sides jumps ahead by two sides instead of one.

138. C — Two rules work together. The third column is always black, and each row uses all three shapes once. Row 3 already has a triangle and a circle, so the missing shape is a square, and it must be black. A black triangle or black circle repeats a shape in the row, and a striped square has the wrong colour.

139. A — Folding the paper in half makes two layers, and the punch goes through both of them. When the paper is opened, each layer shows one hole, so there are two holes, one on each side of the crease. One hole would mean the punch missed a layer, while three or four holes would need more folds.

140. D — One fold makes two layers, so every punch makes a pair of holes when the paper is opened. Two punches therefore make two pairs, which is four holes in all. Two holes would count each punch only once, three holes would mean one punch was not doubled, and six holes would need three layers.

141. A — The first fold makes two layers, and the second fold doubles them to four layers. A punch through the small square goes through all four layers, so the opened paper has four holes. Two holes would be right for only one fold, three holes cannot come from folding, and eight holes would need a third fold.

142. C — Folding a strip into thirds stacks three layers on top of each other, so the punch goes through three layers. When the strip is opened, each layer shows one hole, so there are three holes. Two holes would mean one layer was missed, one hole would mean only a single layer, and six holes would need six layers.

143. B — Two folds make four layers, and each punch goes through all four. Three punches therefore make three groups of four holes, and 3 times 4 equals 12 holes. The choice 6 uses only two layers, 8 uses two punches instead of three, and 3 counts each punch once, which ignores the layers that the folds created.

144. D — Each fold in half doubles the layers: two, then four, then eight. One punch goes through all eight layers, so opening the strip shows eight holes. Four holes would be right for two folds, three holes copies the number of folds instead of the layers, and six holes is not a result that repeated doubling can make.

145. B — The fold runs down the middle, so the hole is mirrored across it. The bottom-right hole has a partner in the bottom-left corner, giving two holes near the bottom. Two holes near the top would be wrong. One hole forgets the second layer, and holes high and low on the right edge would need a top-to-bottom fold.

146. D — The hole is near the sheet's right edge, halfway up. Mirroring across the middle fold puts a second hole near the left edge at the same height. So there is one hole near the middle of each side edge. One hole forgets the second layer, and the other choices place holes at the top, bottom, or center.

147. A — The fold is the center line, so a hole punched close to it lands just beside that line. Its mirror copy lands just across. The result is two holes close together at the center. One hole forgets the second layer, and holes near the edges or top and bottom are far from the fold.

148. C — The folded paper is half as tall, so halfway along its edge is a quarter of the way up the sheet. Its mirror copy lands a quarter of the way down from the top. The opened paper shows two holes near the right edge, one high, one low. Both low ignores the fold, and one hole forgets a layer.

149. C — Each punch goes through two layers, so two punches make four holes. The folded paper is half as tall, so each hole sits a quarter up and its mirror a quarter down. That gives two holes at each side edge, one high and one low. Two holes forgets the layers, and the others misplace the holes.

150. D — Two folds make four layers, so the punch makes four holes. The punch is near the center of the original sheet, and mirroring across both folds places one hole in each of the four quarters, near the center. Four holes at the corners belong to a punch at the outer corner. One hole or two holes ignore the layers.

151. B — The two folds make four layers, so one punch makes four holes. A punch near an outer corner of the sheet is mirrored across both folds into the other three corners. That gives one hole near each corner. Holes around the center belong to a punch at the center corner, and one or two holes miss layers.

152. A — The hole is near the bottom edge, halfway across the small square, so it is a quarter of the way from the sheet's side. Mirroring across both folds gives two holes near the bottom edge and two near the top edge. Corner holes need a corner punch, center holes need a center punch, and side holes need a side punch.

153. B — Both folds go the same way, so the paper has four narrow layers and one punch makes four holes. Each fold mirrors the holes sideways, which spreads them evenly in a straight row across the middle of the sheet. A column would need top-to-bottom folds, corner holes need folds in both directions, and two holes forget two layers.

154. D — The first punch goes through two layers and makes two holes at the top. The second fold makes two layers again, and the second punch near the bottom-right corner makes two more holes. That makes 2 plus 2, or four holes. Three holes forgets a layer, two holes counts one punch, and six holes counts too many.

155. C — The fold runs along the diagonal from bottom-left to top-right, and the square corner is the bottom-right corner. A hole there is mirrored across the diagonal to the top-left corner. So the holes sit

near two opposite corners. The other diagonal needs a different punch, one hole misses a layer, and center holes need a fold punch.

156. A — The two straight folds make four layers, and folding the small square corner to corner doubles that to eight layers. One punch goes through all eight, so the opened paper has eight holes. Four holes would stop before the diagonal fold, six holes is not a doubling number, and sixteen holes would need a fourth fold.

157. B — Each punch goes through four layers and makes four holes, and there are two punches. A punch at the center corner makes four holes around the center, and a punch at the outer corner makes one hole near each corner. That totals eight holes. Four holes forgets that each punch is doubled twice, and a single row has no basis.

158. D — The three figures all have different shapes, so shape is not the rule. What they share is their colour: every one is black. A black circle is the only choice that is black. The white circle and the white heart are white, and the striped square is striped, so each fails the shared feature.

159. A — The figures differ in size and angles, but each has exactly three straight sides, so they are all triangles. The matching choice is the small tilted triangle. A square has four sides, a pentagon has five, and a circle has no straight sides at all, so none of those three belongs with figures that are triangles.

160. C — The wide rectangle, the small square, and the parallelogram all have exactly four straight sides, even though their sizes and slants differ. A trapezoid also has four sides, so it matches. A triangle has only three sides, a pentagon has five sides, and a hexagon has six sides, so each of those three has the wrong number of sides.

161. D — The circle, the oval, and the crescent moon are all drawn with curved lines only, with no straight sides at all. A ring is also made of one smooth curve, so it matches. A square and a triangle are made of straight sides, and a star has straight lines meeting in sharp points, so they do not fit.

162. C — The three figures have different shapes, so the shape does not matter. What they share is the style of the outline, which is dashed in every case. The heart with a dashed outline is the only choice that matches. A solid, double, or wavy outline would each change the line style that connects the first three figures.

163. A — The three figures are different objects, so what they share is the direction: each one points up. A pencil pointing up matches that feature. The pencil pointing down, left, or right is the same object as the answer but points the wrong way, which is the one thing that the first three figures all agree on.

164. B — The shapes change, but every figure is small and sits in the top-left corner of its box. The matching choice keeps both of those features: small and top-left. The other three hearts are also small, but they sit in the top-right corner, the bottom-left corner, or the center, so each puts the figure in the wrong place.

165. D — Each figure has three matching shapes in a slanted line that climbs toward the right. The shape changes, but the count and the slant stay the same. Three hearts going up to the right match both. The line going down slants the other way, and the horizontal and vertical lines have no slant at all.

166. C — The shapes change, but all three figures are filled with the same horizontal stripes. The heart with horizontal stripes keeps that pattern. Vertical stripes run the other way, diagonal stripes are slanted, and small dots are a different pattern, so none of those three shares the stripe direction that links the first three figures.

167. A — The letters O, X, and H can each be folded in half from top to bottom or from side to side, and both halves match. The letter I also has this double symmetry. The letters F, R, and J look different on the two sides of any line, so they have no matching halves.

168. A — Each figure is a large shape that holds exactly two small shapes inside it, and the small shapes are a different kind from the large one. The large star holding two small hearts follows every part of that rule. One heart or three hearts changes the count, and hearts beside the star are outside it, not held inside.

169. B — The shapes are different, so the feature they share is how much is shaded: exactly one quarter of each figure. A hexagon with one quarter shaded keeps that amount. Half shaded is twice as much, three quarters is three times as much, and no shading leaves out the shaded part that every one of the first three figures has.

170. C — Every figure shows a pair of matching shapes with the black one on the left and the white one on the right. The shape changes but the order of colours does not. Two stars with left black and right white keep that order. The reversed order swaps the colours, and both black or both white lose the contrast.

171. B — In every figure a smaller black shape sits inside a larger white shape. The shapes change, but the colour pattern stays the same. A black heart inside a white star follows it exactly. Swapping the colours reverses the pattern, and making both shapes black or both white removes the contrast that every one of the first three figures shows.

172. D — The arrangements change, but the number of dots in each figure is odd: five, seven, and nine. Three is the only odd number among the choices, so three dots in a curve matches. Four, six, and eight are even numbers, so those figures break the one feature that all three of the first figures share.

173. D — The shapes change, but each one is tall and thin. A tall thin diamond keeps that proportion. A short wide diamond has the same shape but is wide instead of tall, and a short wide rectangle is also wide. A large round circle is as wide as it is tall, so it lacks the tall, thin look.

174. B — The letters A, M, and T each have exactly one line of symmetry: a vertical line down the middle, with matching left and right halves. The letter U has that same single line. The letter H has two lines, because it also matches top to bottom. The letters S and F have no line of symmetry at all.

175. A — The shapes differ, but all three figures share three features: they are small, they are white, and they have a dot inside. The first choice keeps all three. A large star fails on size, a black star fails on colour, and a star with no dot fails on the dot, so each wrong choice breaks exactly one shared feature.

176. C — Each figure is made of exactly two different shapes that touch each other. A heart joined to a square also has two shapes that touch. A heart alone has only one shape, three shapes joined has too

many shapes, and a heart far from a square has two shapes that do not touch, so each of those breaks the pattern.