

# PRACTICE EXAM 6: CCAT GRADE 4 SIMULATION (176 QUESTIONS)

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*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. Teacher is to classroom as librarian is to \_\_\_\_.

- A. gym
- B. kitchen
- C. garden
- D. library

2. Marker is to color as eraser is to \_\_\_\_.

- A. staple
- B. erase
- C. measure
- D. glue

3. Student is to school as patient is to \_\_\_\_.

- A. library
- B. stadium
- C. hospital
- D. airport

4. Firefighter is to fire truck as mail carrier is to \_\_\_\_.

- A. mail truck
- B. ambulance
- C. school bus
- D. tractor

5. Hot is to cold as noisy is to \_\_\_\_.

- A. loud
- B. busy
- C. big
- D. quiet

6. Page is to book as classroom is to \_\_\_\_.

- A. school
- B. desk
- C. teacher
- D. lesson

7. Bus is to road as boat is to \_\_\_\_.

- A. sidewalk
- B. field
- C. water
- D. track

8. Small is to tiny as big is to \_\_\_\_.

- A. short
- B. huge
- C. thin
- D. quiet

9. Baker is to bread as farmer is to \_\_\_\_.

- A. vegetables
- B. tractor
- C. barn
- D. market

10. Library is to books as zoo is to \_\_\_\_.

- A. desks
- B. animals
- C. shoes
- D. boats

11. Finger is to hand as toe is to \_\_\_\_.

- A. knee
- B. shoe
- C. sock
- D. foot

12. Pup is to dog as kitten is to \_\_\_\_.

- A. mouse

- B. puppy
- C. cat
- D. bird

**13.** Painter is to painting as author is to \_\_\_\_.

- A. brush
- B. book
- C. museum
- D. color

**14.** Calf is to cow as lamb is to \_\_\_\_.

- A. wool
- B. goat
- C. barn
- D. sheep

**15.** Principal is to school as mayor is to \_\_\_\_.

- A. team
- B. classroom
- C. town
- D. library

**16.** Clock is to time as scale is to \_\_\_\_.

- A. weight
- B. height
- C. distance
- D. speed

17. Brave is to scared as generous is to \_\_\_\_.

- A. kind
- B. giving
- C. friendly
- D. selfish

18. Scene is to play as chapter is to \_\_\_\_.

- A. book
- B. author
- C. library
- D. pencil

19. Referee is to rules as judge is to \_\_\_\_.

- A. games
- B. laws
- C. prizes
- D. winners

20. Yawn is to tired as shiver is to \_\_\_\_.

- A. happy
- B. loud
- C. cold
- D. hungry

21. The school bell rang, so the students lined up to \_\_\_\_ the room.

- A. grow
- B. leave
- C. paint
- D. melt

**22.** Maya packed a \_\_\_\_\_ so she could eat at lunchtime.

- A. sandwich
- B. ladder
- C. puzzle
- D. jacket

**23.** The town library is \_\_\_\_\_ on Sundays, so we cannot borrow books.

- A. noisy
- B. frozen
- C. tasty
- D. closed

**24.** It was raining hard, so the crossing guard wore a bright \_\_\_\_\_.

- A. swimsuit
- B. costume
- C. raincoat
- D. blanket

**25.** The class was \_\_\_\_\_ when the teacher read the funny story, and everyone laughed.

- A. bored

- B. delighted
- C. nervous
- D. upset

**26.** The new student felt \_\_\_\_\_ on her first day because she did not know anyone.

- A. nervous
- B. proud
- C. sleepy
- D. silly

**27.** Our neighbors work together to keep the park \_\_\_\_\_ by picking up litter.

- A. muddy
- B. empty
- C. clean
- D. noisy

**28.** The team practiced every day, so their skills \_\_\_\_\_ a lot.

- A. vanished
- B. froze
- C. shrank
- D. improved

**29.** Because the bridge was \_\_\_\_\_, the town built a new one before anyone got hurt.

- A. unsafe
- B. beautiful
- C. famous
- D. colorful

**30.** The volunteers were \_\_\_\_\_ to help, so they arrived early and stayed late.

- A. reluctant
- B. unable
- C. afraid
- D. eager

**31.** Mr. Lee gave a clear \_\_\_\_\_ so everyone knew how to do the science project.

- A. mystery
- B. ending
- C. explanation
- D. accident

**32.** Everyone was invited to \_\_\_\_\_ in the town meeting and share ideas.

- A. escape
- B. participate
- C. hide
- D. sleep

**33.** The school hall was \_\_\_\_\_ before the concert, but it became \_\_\_\_\_ once the audience arrived.

- A. crowded, empty
- B. empty, crowded
- C. quiet, silent
- D. noisy, crowded

**34.** The fundraiser was a \_\_\_\_\_ success, raising more money than anyone expected.

- A. slight
- B. doubtful
- C. tremendous
- D. gentle

**35.** The substitute teacher was \_\_\_\_\_ with the class rules, so she asked a student to explain them.

- A. pleased
- B. careless
- C. proud
- D. unfamiliar

**36.** Although the project was difficult, Sam stayed \_\_\_\_\_ and finished it.

- A. determined
- B. discouraged
- C. lazy
- D. careless

**37.** The festival was so \_\_\_\_\_ that we could barely find a place to stand.

- A. quiet
- B. crowded
- C. spacious
- D. empty

**38.** The librarian spoke in a soft \_\_\_\_\_ so she would not disturb the readers.

- A. whisper

- B. shout
- C. roar
- D. cheer

**39.** Everyone \_\_\_\_ Ms. Diaz because she is always fair and kind.

- A. fears
- B. forgets
- C. ignores
- D. respects

**40.** The plan was \_\_\_\_ because some neighbors loved it and others strongly opposed it.

- A. popular
- B. harmless
- C. controversial
- D. ordinary

**41.** Which word belongs with: pencil, eraser, ruler?

- A. carrot
- B. blanket
- C. marker
- D. bicycle

**42.** Which word belongs with: nurse, teacher, firefighter?

- A. bakery
- B. hammer
- C. station
- D. pilot

**43.** Which word belongs with: library, park, school?

- A. bench
- B. museum
- C. ticket
- D. doctor

**44.** Which word belongs with: math, reading, writing?

- A. science
- B. lunch
- C. bell
- D. desk

**45.** Which word belongs with: red, blue, green?

- A. square
- B. purple
- C. shiny
- D. paint

**46.** Which word belongs with: soccer, hockey, basketball?

- A. baseball
- B. referee
- C. trophy
- D. whistle

**47.** Which word belongs with: bus, bike, train?

- A. road
- B. ticket
- C. truck
- D. driver

**48.** Which word belongs with: cheerful, joyful, delighted?

- A. gloomy
- B. sleepy
- C. quiet
- D. glad

**49.** Which word belongs with: maple, oak, pine?

- A. tulip
- B. grass
- C. acorn
- D. birch

**50.** Which word belongs with: meter, centimeter, kilometer?

- A. kilogram
- B. liter
- C. millimeter
- D. minute

**51.** Which word belongs with: spring, summer, autumn?

- A. winter

- B. snow
- C. calendar
- D. weather

**52.** Which word belongs with: addition, subtraction, multiplication?

- A. fraction
- B. division
- C. number
- D. answer

**53.** Which word belongs with: river, lake, ocean?

- A. island
- B. pond
- C. beach
- D. boat

**54.** Which word belongs with: noun, verb, adjective?

- A. adverb
- B. sentence
- C. paragraph
- D. letter

**55.** Which word belongs with: mayor, principal, captain?

- A. student
- B. neighbor
- C. manager
- D. visitor

**56.** Which word belongs with: generous, honest, kind?

- A. greedy
- B. tall
- C. tired
- D. respectful

**57.** Which word belongs with: hammer, saw, drill?

- A. nail
- B. board
- C. wrench
- D. builder

**58.** Which word belongs with: marathon, sprint, relay?

- A. goalie
- B. hurdles
- C. stadium
- D. medal

**59.** Which word belongs with: petal, stem, root?

- A. soil
- B. bee
- C. garden
- D. leaf

**60.** Two number pairs follow the same rule:  $4 : 9$  and  $7 : 12$ . Which number goes with 10 ( $10 : ?$ ) in the same way?

- A. 15
- B. 20
- C. 14
- D. 17

**61.** Two number pairs follow the same rule:  $3 : 12$  and  $5 : 20$ . Which number goes with 7 ( $7 : ?$ ) in the same way?

- A. 28
- B. 21
- C. 11
- D. 35

**62.** Two number pairs follow the same rule:  $15 : 10$  and  $20 : 15$ . Which number goes with 30 ( $30 : ?$ ) in the same way?

- A. 35
- B. 15
- C. 20
- D. 25

**63.** Two number pairs follow the same rule:  $42 : 7$  and  $54 : 9$ . Which number goes with 72 ( $72 : ?$ ) in the same way?

- A. 66
- B. 432
- C. 12
- D. 18

**64.** Two number pairs follow the same rule:  $9 : 90$  and  $4 : 40$ . Which number goes with 7 ( $7 : ?$ ) in the same way?

- A. 16
- B. 70
- C. 63
- D. 700

**65.** Two number pairs follow the same rule:  $5 : 15$  and  $8 : 24$ . Which number goes with 12 ( $12 : ?$ ) in the same way?

- A. 17
- B. 48
- C. 24
- D. 36

**66.** Two number pairs follow the same rule:  $40 : 8$  and  $25 : 5$ . Which number goes with 60 ( $60 : ?$ ) in the same way?

- A. 55
- B. 12
- C. 300
- D. 15

**67.** Two number pairs follow the same rule:  $9 : 5$  and  $15 : 11$ . Which number goes with 22 ( $22 : ?$ ) in the same way?

- A. 26
- B. 14
- C. 18
- D. 20

**68.** Two number pairs follow the same rule:  $12 : 3$  and  $32 : 8$ . Which number goes with 56 ( $56 : ?$ ) in the same way?

- A. 14
- B. 52
- C. 28
- D. 224

**69.** Two number pairs follow the same rule:  $50 : 25$  and  $30 : 15$ . Which number goes with 64 ( $64 : ?$ ) in the same way?

- A. 32
- B. 14
- C. 128
- D. 62

**70.** Two number pairs follow the same rule:  $100 : 90$  and  $70 : 60$ . Which number goes with 45 ( $45 : ?$ ) in the same way?

- A. 55
- B. 40
- C. 35
- D. 25

**71.** Two number pairs follow the same rule:  $13 : 28$  and  $20 : 35$ . Which number goes with 32 ( $32 : ?$ ) in the same way?

- A. 17
- B. 52
- C. 45
- D. 47

**72.** Two number pairs follow the same rule:  $28 : 40$  and  $45 : 57$ . Which number goes with 63 ( $63 : ?$ ) in the same way?

- A. 51
- B. 75
- C. 126
- D. 73

**73.** Two number pairs follow the same rule:  $4 : 20$  and  $6 : 30$ . Which number goes with 9 ( $9 : ?$ ) in the same way?

- A. 14
- B. 36
- C. 54
- D. 45

**74.** Two number pairs follow the same rule:  $80 : 20$  and  $48 : 12$ . Which number goes with 36 ( $36 : ?$ ) in the same way?

- A. 32
- B. 9
- C. 144
- D. 18

**75.** Two number pairs follow the same rule:  $17 : 8$  and  $25 : 16$ . Which number goes with 31 ( $31 : ?$ ) in the same way?

- A. 40
- B. 23
- C. 22
- D. 15

**76.** Two number pairs follow the same rule:  $2 : 7$  and  $5 : 13$ . Which number goes with 8 ( $8 : ?$ ) in the same way?

- A. 19
- B. 16
- C. 11
- D. 24

**77.** Two number pairs follow the same rule:  $4 : 16$  and  $6 : 36$ . Which number goes with 9 ( $9 : ?$ ) in the same way?

- A. 81
- B. 36
- C. 54
- D. 18

**78.** Two number pairs follow the same rule:  $4 : 7$  and  $9 : 17$ . Which number goes with 12 ( $12 : ?$ ) in the same way?

- A. 24
- B. 25
- C. 23
- D. 20

**79.** Two number pairs follow the same rule:  $10 : 6$  and  $20 : 11$ . Which number goes with 36 ( $36 : ?$ ) in the same way?

- A. 18
- B. 19
- C. 26
- D. 38

**80.** Solve:  $26 + ? = 61$ . What number goes in the blank?

- A. 87
- B. 34
- C. 36
- D. 35

**81.** Solve:  $? - 9 = 26$ . What number goes in the blank?

- A. 17
- B. 35
- C. 45
- D. 34

**82.** Solve:  $8 \times ? = 72$ . What number goes in the blank?

- A. 9
- B. 64
- C. 80
- D. 8

**83.** Which sign makes this true?  $9 ? 6 = 15$

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

**84.** Solve:  $72 \div ? = 8$ . What number goes in the blank?

- A. 64
- B. 80
- C. 8
- D. 9

**85.** Solve:  $? \div 5 = 7$ . What number goes in the blank?

- A. 12
- B. 2
- C. 36
- D. 35

**86.** Solve:  $? + 12 = 50 - 9$ . What number goes in the blank?

- A. 41
- B. 29
- C. 38
- D. 28

**87.** Which sign makes this true?  $5 ? 8 = 40$

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

**88.** Solve:  $? \times 3 + 4 = 28$ . What number goes in the blank?

- A. 8
- B. 24
- C. 7

D. 10

**89.** Each square stands for the same number, and  $\text{square} + \text{square} + \text{square} = 27$ . What is square plus 4?

A. 9

B. 31

C. 17

D. 13

**90.** Solve:  $56 - ? = 3 \times 9$ . What number goes in the blank?

A. 83

B. 29

C. 27

D. 30

**91.** Solve:  $15 + ? = 6 \times 5$ . What number goes in the blank?

A. 15

B. 45

C. 30

D. 16

**92.** Which sign makes this true?  $28 ? 7 = 4$

A. plus

B. minus

C. divided by

D. times

**93.** Solve:  $? \div 4 + 9 = 14$ . What number goes in the blank?

- A. 5
- B. 24
- C. 36
- D. 20

**94.** Each triangle stands for the same number, and  $\text{triangle} \times \text{triangle} = 36$ . What is triangle plus 3?

- A. 12
- B. 6
- C. 9
- D. 39

**95.** Solve:  $90 - ? - 30 = 20$ . What number goes in the blank?

- A. 60
- B. 40
- C. 50
- D. 10

**96.** Solve:  $63 \div ? - 4 = 3$ . What number goes in the blank?

- A. 9
- B. 7
- C. 21
- D. 8

**97.** Each circle stands for the same number, and  $\text{circle} + \text{circle} + 6 = 30$ . What is circle  $\times$  2?

- A. 12
- B. 36
- C. 24
- D. 18

**98.** Solve:  $(? + 6) \div 2 = 9$ . What number goes in the blank?

- A. 12
- B. 18
- C. 15
- D. 3

**99.** What number comes next? 9, 13, 17, 21, ?

- A. 24
- B. 25
- C. 29
- D. 26

**100.** What number comes next? 88, 83, 78, 73, ?

- A. 63
- B. 58
- C. 71
- D. 68

**101.** What number comes next? 12, 24, 36, 48, ?

- A. 54
- B. 72
- C. 60

D. 56

**102.** What number comes next? 11, 22, 44, 88, ?

A. 176

B. 132

C. 99

D. 264

**103.** What number comes next? 8, 9, 11, 14, 18, ?

A. 22

B. 24

C. 36

D. 23

**104.** What number comes next? 112, 56, 28, 14, ?

A. 4

B. 7

C. 12

D. 28

**105.** What number comes next? 5, 8, 11, 14, 17, ?

A. 19

B. 22

C. 23

D. 20

**106.** What number comes next? 1, 2, 4, 8, 16, ?

- A. 24
- B. 32
- C. 20
- D. 31

**107.** What number comes next? 2, 10, 4, 10, 6, 10, ?

- A. 8
- B. 10
- C. 12
- D. 7

**108.** What number comes next? 50, 41, 33, 26, 20, ?

- A. 14
- B. 16
- C. 15
- D. 10

**109.** What number comes next? 3, 4, 7, 12, 19, ?

- A. 26
- B. 28
- C. 27
- D. 38

**110.** What number comes next? 100, 94, 88, 82, ?

- A. 78
- B. 72
- C. 70
- D. 76

**111.** What number comes next? 5, 9, 17, 33, 65, ?

- A. 129
- B. 130
- C. 97
- D. 81

**112.** What number comes next? 9, 10, 12, 15, 19, ?

- A. 23
- B. 25
- C. 24
- D. 38

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

- A. 4
- B. 50
- C. 40
- D. 33

**114.** What number comes next? 6, 18, 54, 162, ?

- A. 324
- B. 216
- C. 480

D. 486

**115.** What number comes next? 4, 8, 6, 12, 10, 20, ?

A. 18

B. 40

C. 22

D. 16

**116.** What number comes next? 405, 135, 45, 15, ?

A. 3

B. 5

C. 10

D. 30

**117.** What number comes next? 7, 9, 13, 19, 27, ?

A. 35

B. 36

C. 37

D. 45

**118.** What number comes next? 7, 8, 10, 14, 22, ?

A. 38

B. 30

C. 36

D. 44

**119.** In a 2 by 2 grid, the top row shows a large gray square, then a large white square. The bottom row shows a large gray star, then a missing figure. Which figure completes the grid?

- A. a large gray star
- B. a large white star
- C. a small white star
- D. a large white square

**120.** In a 2 by 2 grid, the top row shows a large square, then a small square. The bottom row shows a large heart, then a missing figure. Which figure completes the grid?

- A. a large heart
- B. a small square
- C. a small star
- D. a small heart

**121.** In a 2 by 2 grid, the top row shows a black circle, then a white circle. The bottom row shows a black square, then a missing figure. Which figure completes the grid?

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

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

- A. one small square
- B. three small squares
- C. two small squares
- D. two small dots

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

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

**124.** In a 2 by 3 grid, the top row shows a small white circle, a medium white circle, then a large white circle. The bottom row shows a small black square, a medium black square, then a missing figure. Which figure completes the grid?

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

**125.** In a 2 by 3 grid, the top row shows one triangle, two triangles, then three triangles. The bottom row shows one star, two stars, then a missing figure. Which figure completes the grid?

- A. four stars
- B. three triangles
- C. three stars
- D. two stars

**126.** In a 2 by 3 grid, the top row shows a white square, a gray square, then a black square. The bottom row shows a white circle, a gray circle, then a missing figure. Which figure completes the grid?

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

**127.** In a 2 by 2 grid, the top row shows a circle with a dot inside, then a circle with no dot. The bottom row shows a square with a dot inside, then a missing figure. Which figure completes the grid?

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

**128.** In a 2 by 3 grid, the top row shows a circle, a square, then a triangle. The bottom row shows a square, a triangle, then a missing figure. Which figure completes the grid?

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

**129.** In a 3 by 3 grid, the first row shows a small circle, a medium circle, then a large circle. The second row shows a small square, a medium square, then a large square. The third row shows a small triangle, a medium triangle, then a missing figure. Which figure completes the grid?

- A. a medium triangle
- B. a large square
- C. a large triangle
- D. a large circle

**130.** In a 3 by 3 grid, the first row shows a white circle, a white square, then a white triangle. The second row shows a gray circle, a gray square, then a gray triangle. The third row shows a black circle, a black square, then a missing figure. Which figure completes the grid?

- A. a gray triangle

- B. a black circle
- C. a white triangle
- D. a black triangle

**131.** In a 3 by 3 grid, the first row shows a circle, a square, then a star. The second row shows a star, a circle, then a square. The third row shows a square, a star, then a missing figure. Which figure completes the grid?

- A. a square
- B. a circle
- C. a star
- D. a heart

**132.** In a 2 by 3 grid, the top row shows one white dot, two white dots, then three white dots. The bottom row shows two black dots, four black dots, then a missing figure. Which figure completes the grid?

- A. six black dots
- B. three black dots
- C. five black dots
- D. six white dots

**133.** In a 2 by 2 grid, the top row shows a plain square, then a square with a dot inside. The bottom row shows a plain triangle, then a missing figure. Which figure completes the grid?

- A. a plain triangle
- B. a square with a dot inside
- C. a triangle with a dot inside
- D. a triangle with two dots inside

**134.** In a 3 by 3 grid, the first row shows one dot, two dots, then three dots. The second row shows two dots, three dots, then four dots. The third row shows three dots, four dots, then a missing figure. Which figure completes the grid?

- A. four dots
- B. five dots
- C. six dots
- D. three dots

**135.** In a 3 by 3 grid, the first row shows a small black circle, a medium black circle, then a large black circle. The second row shows a small white square, a medium white square, then a large white square. The third row shows a small gray star, a medium gray star, then a missing figure. Which figure completes the grid?

- A. a medium gray star
- B. a large white star
- C. a large gray circle
- D. a large gray star

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

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

**137.** In a 3 by 3 grid, the first row shows a white circle, a gray circle, then a black circle. The second row shows a gray square, a black square, then a white square. The third row shows a black triangle, a white triangle, then a missing figure. Which figure completes the grid?

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

**138.** In a 3 by 3 grid, the first row shows a white circle, a gray square, then a black triangle. The second row shows a gray triangle, a black circle, then a white square. The third row shows a black square, a white triangle, then a missing figure. Which figure completes the grid?

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

**139.** A rectangle of notebook paper is folded in half from left to right. One hole is punched through the folded paper, away from the edges. How many holes are in the paper when it is opened flat?

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

**140.** A square sheet is folded in half from top to bottom, and then two holes are punched through the folded sheet, away from the edges. How many holes are in the sheet when it is opened flat?

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

**141.** A square sheet 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 the edges. How many holes are in the sheet when it is opened flat?

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

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

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

**143.** A square sheet is folded corner to corner to make a triangle. One hole is punched through the triangle, away from the fold. How many holes are in the sheet when it is opened flat?

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

**144.** A paper is folded in half, and three holes are punched through the folded paper, all away from the fold. How many holes are in the paper when it is opened flat?

- A. 3 holes
- B. 5 holes
- C. 6 holes
- D. 9 holes

**145.** A square paper is folded in half from left to right. A hole is punched close to the right edge of the folded paper. Where are the holes when the paper is opened flat?

- A. two near the right edge
- B. one near each side edge
- C. two in the middle
- D. one near the crease only

**146.** A square paper is folded in half from top to bottom. One hole is punched close to the fold, in the middle of the folded paper. Where are the holes when the paper is opened flat?

- A. two near the middle, above and below
- B. two near the top edge
- C. one hole on the middle line
- D. one near the bottom edge only

**147.** A square paper is folded in half and then in half again to make a small square, with two holes punched through all the layers. How many holes are in the paper when it is opened flat?

- A. 4 holes
- B. 6 holes
- C. 2 holes
- D. 8 holes

**148.** A paper is folded in half twice, making four layers, and three holes are punched through all the layers. How many holes are in the paper when it is opened flat?

- A. 7 holes
- B. 9 holes
- C. 12 holes

D. 16 holes

**149.** A long paper strip is folded in thirds, with three layers. Three holes are punched through all the layers. How many holes are in the strip when it is opened flat?

A. 9 holes

B. 3 holes

C. 6 holes

D. 12 holes

**150.** A paper is folded in half once, and one hole is punched through the folded paper. The paper is then opened flat, and one more hole is punched through the single sheet. How many holes are in the paper?

A. 2 holes

B. 3 holes

C. 4 holes

D. 1 hole

**151.** A paper is folded in half twice, making four layers, and one hole is punched through it. The paper is then opened flat, and two more holes are punched through the single sheet. How many holes are in the paper?

A. 4 holes

B. 3 holes

C. 6 holes

D. 12 holes

**152.** A square paper is folded in half three times, so there are eight layers. One hole is punched through all the layers. How many holes are in the paper when it is opened flat?

A. 4 holes

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

**153.** A square paper is folded in half from top to bottom. A hole is punched near the left edge, halfway along the height of the folded paper. Where are the holes when the paper is opened flat?

- A. one near the left edge
- B. two near the left, one above the other
- C. two near the right edge, one above the other
- D. two side by side in the middle

**154.** A square paper is folded in half, and then folded in half again to make a small square. One hole is punched close to the corner of the small square that was a corner of the original paper. Where are the holes when the paper is opened flat?

- A. four, in a small square around the center
- B. one near a corner of the paper
- C. two near the top corners only
- D. four, one near each corner of the paper

**155.** A square paper is folded in half, and then folded in half again to make a small square. One hole is punched close to the corner of the small square where both creases meet. Where are the holes when the paper is opened flat?

- A. four near the center, in a square
- B. four, one near each corner of the sheet
- C. one in the exact center of the sheet
- D. two close together near the middle

**156.** A rectangle of paper is folded in half, then folded in thirds like a letter, making six layers. One hole is punched through all the layers. How many holes are in the paper when it is opened flat?

- A. 3 holes
- B. 5 holes
- C. 6 holes
- D. 12 holes

**157.** A square paper is folded in half three times, so there are eight layers, and two holes are punched through all the layers. How many holes are in the paper when it is opened flat?

- A. 8 holes
- B. 10 holes
- C. 24 holes
- D. 16 holes

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

- A. a small black star
- B. a large white star
- C. a large black star
- D. a large gray star

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

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

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

- A. a heart with two small squares inside
- B. a heart with three small squares inside
- C. a heart with four small squares inside
- D. a heart with three small circles inside

**161.** Three figures are shown. The first is a triangle. The second is a square. The third is a pentagon. Which figure is most like the first three?

- A. a circle
- B. an oval
- C. a half circle
- D. a hexagon

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

- A. a star with one stripe
- B. a star with three stripes
- C. a star with two stripes
- D. a star with no stripes

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

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

**164.** Three figures are shown. The first is a small gray circle at the bottom of a box. The second is a small gray square at the bottom of a box. The third is a small gray star at the bottom of a box. Which figure is most like the first three?

- A. a small gray heart at the bottom of a box
- B. a small gray heart at the top of a box
- C. a large gray heart at the bottom of a box
- D. a small black heart at the bottom of a box

**165.** Three figures are shown. The first is two white circles. The second is two white squares. The third is two white triangles. Which figure is most like the first three?

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

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

- A. a letter C shape
- B. a zigzag line
- C. a straight line
- D. a diamond

**167.** Three figures are shown. The first is a circle with its left half black. The second is a square with its left half black. The third is a triangle with its left half black. Which figure is most like the first three?

- A. a star with its right half black
- B. a star with its top half black

- C. a star with its left half black
- D. a star that is all black

**168.** Three figures are shown. The first is a circle drawn with a thick line. The second is a square drawn with a thick line. The third is a triangle drawn with a thick line. Which figure is most like the first three?

- A. a star drawn with a thin line
- B. a star drawn with a thick line
- C. a star drawn with a dotted line
- D. a star drawn with a double line

**169.** Three figures are shown. The first is a shape with three sides. The second is a shape with five sides. The third is a shape with seven sides. Which figure is most like the first three?

- A. a shape with four sides
- B. a shape with nine sides
- C. a shape with six sides
- D. a shape with eight sides

**170.** Three figures are shown. The first is a box with three small dots in a row. The second is a box with three small squares in a row. The third is a box with three small triangles in a row. Which figure is most like the first three?

- A. a box with two small stars in a row
- B. a box with three small stars in a column
- C. a box with three small stars in a row
- D. a box with four small stars in a row

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

- A. a small heart inside a large oval
- B. a small heart beside a large oval
- C. a large heart beside a small oval
- D. a small heart under a large oval

**172.** Three figures are shown. The first is a row of three squares colored black, white, black. The second is a row of three circles colored black, white, black. The third is a row of three triangles colored black, white, black. Which figure is most like the first three?

- A. a row of three stars colored white, black, white
- B. a row of three stars colored black, black, white
- C. a row of three stars colored white, white, black
- D. a row of three stars colored black, white, black

**173.** Three figures are shown. The first is a circle cut into four equal parts. The second is a square cut into four equal parts. The third is a triangle cut into four equal parts. Which figure is most like the first three?

- A. a rectangle cut into two equal parts
- B. a rectangle cut into three equal parts
- C. a rectangle cut into four equal parts
- D. a rectangle cut into six equal parts

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

- A. a large black star with a small white dot inside
- B. a large black star with a small black dot inside
- C. a large white star with a small white dot inside
- D. a small black star with a small white dot inside

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

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

**176.** Three figures are shown. The first is two circles joined by a line. The second is two squares joined by a line. The third is two triangles joined by a line. Which figure is most like the first three?

- A. two stars with no line between them
- B. a star and a heart joined by a line
- C. three stars joined by lines
- D. two stars joined by a line

## Practice Exam 6: Answer Key and Explanations

**1. D** — A teacher works in a classroom, and a librarian works in a library. Both pairs match a worker with the place where the job happens. A gym belongs to a coach, a kitchen belongs to a cook, and a garden belongs to a gardener, so none of those places fits the librarian the way the library does.

**2. B** — A marker is a school tool used to color, and an eraser is a school tool used to erase. Each pair joins a tool with its job. A stapler fastens papers, a ruler measures, and glue sticks things together, so staple, measure, and glue are jobs of other tools and do not describe what an eraser does.

**3. C** — A student goes to a school to learn, and a patient goes to a hospital to get care. Each pair joins a person with the place built for that person's needs. A library is for readers, a stadium is for fans, and an airport is for travelers, so none of them is the place where a patient gets treated.

**4. A** — A firefighter rides in a fire truck to do the job, and a mail carrier drives a mail truck to deliver letters. Each pair links a community worker with the vehicle used at work. An ambulance serves medical helpers, a school bus carries students, and a tractor is a farm machine, so none of them belongs to a mail carrier.

**5. D** — Hot and cold are opposites, so the answer must be the opposite of noisy. Quiet means making very little sound, which is the reverse of noisy. Loud means almost the same as noisy, so it is a synonym and not an opposite. Busy and big describe other ideas and have nothing to do with how much sound there is.

**6. A** — A page is one part of a book, and a classroom is one part of a school. A desk sits inside a classroom, so it is smaller instead of larger. A teacher is a person and a lesson is an activity, so neither one is a whole building that contains a classroom.

**7. C** — A bus travels along a road, and a boat travels on water. Each pair joins a vehicle with the surface it moves across. A sidewalk is made for people walking, a field is grass or farmland, and a track is for trains or runners, so a boat cannot travel on any of them the way it travels on water.

**8. B** — Tiny means very small, so the second word is a stronger form of the first. The same step from big is huge, which means very big. Short and thin describe other kinds of size, so they do not make big stronger. Quiet describes sound, not size, so it has no connection to the small-to-tiny pattern at all.

**9. A** — A baker makes bread, and a farmer grows vegetables, so each pair links a worker with what the worker produces. A tractor is only a tool the farmer uses, and a barn is a building where animals or hay are kept. A market is a place that sells food, but the farmer does not produce the market itself.

**10. B** — A library is a place that holds many books, and a zoo is a place that holds many animals. Each pair joins a community building with the things collected inside it. Desks belong in classrooms, shoes belong in stores, and boats belong on water, so none of those is what visitors expect to find gathered in a zoo.

**11. D** — A finger is one part of a hand, and a toe is one part of a foot. A knee is a different body part and is not where toes grow. A shoe and a sock are clothing that cover a foot, but a toe is not a part of either one.

**12. C** — A pup is a young dog, and a kitten is a young cat, so each pair joins a baby animal with its grown-up kind. A mouse and a bird are unrelated animals. A puppy is also a young dog, so it repeats the first pair and does not name the grown-up animal a kitten becomes.

**13. B** — A painter creates a painting, and an author creates a book. Each pair joins a creator with the finished work that person makes. A brush is only the tool a painter uses, a museum is a place where artwork is displayed, and a color is a part of a painting, so none of them is what an author produces.

**14. D** — A calf is a young cow, and a lamb is a young sheep, so each pair joins a baby animal with the adult it becomes. Wool is what a sheep grows, not an animal. A goat is a different kind of adult animal, and a barn is a building, so neither names what a lamb becomes.

**15. C** — A principal is the leader in charge of a school, and a mayor is the leader in charge of a town. Each pair joins a leader with the community that person leads. A team has a coach, a classroom has a teacher, and a library has a librarian, so none of those is led by a mayor.

**16. A** — A clock is the tool that tells the time, and a scale is the tool that tells how much something weighs. Each pair joins a measuring tool with what it measures. Height and distance are measured with a ruler or a tape measure, and speed is measured with a speedometer, so none of those is something a scale measures.

**17. D** — Brave and scared are opposites, so the answer must be the opposite of generous. A generous person shares freely, while a selfish person keeps everything for himself or herself. Kind and giving mean nearly the same as generous, so they are synonyms. Friendly is a related good quality, but it is not the opposite of sharing.

**18. A** — A scene is one section of a play, and a chapter is one section of a book. Each pair joins a smaller part with the larger work it helps to make. A library holds many books, and a pencil is a writing tool, so neither one is a whole that contains chapters.

**19. B** — A referee makes sure players follow the rules of a game, and a judge makes sure people follow the laws of the community. Each pair joins an official with what that person enforces. Games are what the referee watches, and prizes and winners are results, so none of them is something a judge enforces.

**20. C** — A yawn is a body signal that shows a person is tired, and a shiver is a body signal that shows a person is cold. Each pair links a sign with the condition that causes it. People can feel happy, loud, or hungry without shivering, so those words do not name the usual cause of a shiver.

**21. B** — When the bell rings, students line up to go out, so leave is the word that makes sense. Students cannot grow a room, because growing is something living things do on their own. Paint does not fit the bell and the line. Melt is for ice or butter, so it makes no sense here.

**22. A** — Lunchtime is when people eat, so the packed item must be food, and a sandwich is a common lunch. A ladder is a climbing tool, a puzzle is a game for playing, and a jacket is clothing worn for warmth. None of those three can be eaten, so only sandwich completes the sentence in a sensible way.

**23. D** — The words cannot borrow books explain what the blank says about the library. A library that is closed is not open, so no one can borrow anything. Noisy would describe sound but would not stop borrowing. A building cannot be tasty, and frozen does not make sense for a library on an ordinary Sunday.

**24. C** — Heavy rain calls for clothing that keeps a person dry, and a raincoat does exactly that. A swimsuit is meant for getting wet in a pool, a costume is for pretending, and a blanket is for warmth indoors. None of those protects someone standing outside in the rain, so raincoat is the best word.

**25. B** — The clue is that everyone laughed, which shows the students enjoyed the story. Delighted means very pleased, so it matches the laughter. Bored students would not laugh together, nervous means worried, and upset means unhappy. Each of those three feelings clashes with a room full of children laughing at a funny story.

**26. A** — The reason given is that she did not know anyone, which would make a new student feel worried and unsure, so nervous fits. Proud is a feeling of pleasure about an achievement, which is not

connected to meeting strangers. Sleepy and silly describe tiredness and playfulness, and neither one is explained by not knowing anyone.

**27. C** — Picking up litter takes trash away, so the park becomes clean. Muddy means covered in wet dirt, and picking up trash would not cause that. Empty could be possible if everyone left, but the sentence is about trash. Noisy describes sound, and removing litter does nothing to change how loud the park is.

**28. D** — Daily practice makes a person better at something, so skills improved is the sensible result. Vanished means disappeared, which is the opposite of the effect practice has. Skills cannot freeze, because that word describes ice and cold weather. Shrank describes something getting smaller in size, which does not apply to abilities that grow with practice.

**29. A** — The town built a new bridge to stop anyone from getting hurt, so the old bridge must have been dangerous. Unsafe means not safe, which gives a clear reason. A bridge that was beautiful, famous, or colorful would give people no reason to replace it, because none of those words suggests any danger of injury.

**30. D** — People who arrive early and stay late must really want to help, so eager is the word. Reluctant means unwilling, which is the opposite. Unable means they could not help, but they clearly did. Afraid might explain staying away, not showing up early, so neither fits the actions in the sentence.

**31. C** — Everyone knew how to do the project because of what Mr. Lee told them, and a clear explanation is how a teacher shows the steps. A mystery is something unknown, which would not help. An ending is just the last part, and an accident is something unplanned, so neither would teach the class how to finish the project.

**32. B** — Sharing ideas in a meeting means taking part, and participate means to join in an activity. Someone who escapes or hides is trying to avoid the meeting, which is the opposite of sharing. Sleep also does not work, since a person cannot share ideas while sleeping, so participate is the only word that matches the invitation.

**33. B** — The word but signals a change, and an audience arriving makes a hall go from empty to crowded. The reversed pair crowded, empty gets the order wrong. Quiet and silent are almost the same, so they show no change. Noisy before the concert does not fit, because the room had no one in it yet.

**34. C** — Raising more money than anyone expected is a very large success, so tremendous, meaning huge, fits well. A slight success would be small, which contradicts the sentence. Doubtful means uncertain, which also clashes with a result that beat every expectation. Gentle describes softness, so it does not make sense when talking about how much money was raised.

**35. D** — A teacher who needs a student to explain the rules must not know them well, so unfamiliar is the best word. Pleased and proud describe happy feelings, and nothing in the sentence connects those to asking for help. Careless means not paying attention to details, but that does not lead directly to asking for an explanation of the rules.

**36. A** — Although points to a contrast: the project was hard, but Sam kept going. Determined means refusing to give up, which matches finishing a hard task. Discouraged, lazy, and careless would all fit with quitting or doing poor work, so they do not create the contrast. A lazy or careless student would not stay with a difficult project to the end.

**37. B** — Barely finding a place to stand means there were too many people for the space, so crowded is the correct word. Quiet describes sound and not the number of people. Spacious and empty are opposites of crowded, since they would mean plenty of room to stand, which clashes with the clue that standing space was hard to find.

**38. A** — To avoid disturbing readers, the librarian would speak very quietly, and a soft whisper is the quietest way to talk. A shout, a roar, and a cheer are all loud sounds that would bother people trying to read. The word soft in the sentence is also a clue, because none of those loud sounds is ever described as soft.

**39. D** — Fair and kind describe good qualities, and people admire leaders who have them, so respects is the best fit. Fears does not match kindness, because kind people do not usually frighten others. Forgets and ignores would mean people paid no attention to her, which cannot be explained by her being fair and kind, so neither word works.

**40. C** — A plan that some people love and others strongly oppose causes disagreement, and controversial means exactly that. Popular would mean most people like it, which ignores the opposing neighbors. Harmless and ordinary describe a plan with no strong feelings about it, but the sentence says opinions were strong on both sides, so those words cannot be correct.

**41. C** — Pencil, eraser, and ruler are all supplies a student keeps in a school bag, so marker is the match because it is also a classroom tool. A carrot is a vegetable, a blanket is used on a bed, and a bicycle is a vehicle. None of those three is a supply a student would use at a desk.

**42. D** — Nurse, teacher, and firefighter are all people who work to serve others, so pilot is the matching worker. A bakery and a station are places, and a hammer is a tool. Those three words are not people with jobs, so they do not belong with three workers the way the pilot does.

**43. B** — Library, park, and school are all public places in a community where people gather. A museum is also a public place that people visit, so it belongs with them. A bench is an object, a ticket is a piece of paper, and a doctor is a person, so none of those three is a community place.

**44. A** — Math, reading, and writing are all subjects that students study in school, so science joins them as another subject. Lunch is a meal, a bell is something that rings to signal time, and a desk is furniture. Those three words are parts of the school day or classroom, but none of them is a subject students learn.

**45. B** — Red, blue, and green are names of colors, and purple is another color. A square is a shape, shiny describes how a surface looks in the light, and paint is a material that has color but is not a color itself. None of those three words names a color, so they do not belong.

**46. A** — Soccer, hockey, and basketball are all team sports, and baseball is another team sport. A referee is a person who watches the game, and a trophy is a prize given for winning. A whistle is equipment used to stop play. None of those three is a sport that people play, so they do not belong with the group.

**47. C** — Bus, bike, and train are all vehicles that carry people from place to place, so truck is another vehicle. A road is a path that vehicles use, a ticket is a paper that lets someone ride, and a driver is a person who steers. None of those three is a vehicle itself, so they do not match.

**48. D** — Cheerful, joyful, and delighted all describe a happy feeling, so glad joins them because it also means happy. Gloomy is the opposite, since it describes a sad mood. Sleepy describes being tired, and quiet describes a lack of noise, so neither of those words describes happiness the way the first three do.

**49. D** — Maple, oak, and pine are all kinds of trees, and a birch is another kind of tree. A tulip is a flower, grass is a small plant that covers the ground, and an acorn is the seed that comes from an oak. None of those three words is a type of tree, so they do not belong.

**50. C** — Meter, centimeter, and kilometer are all units used to measure length, and a millimeter is another unit of length. A kilogram measures weight, a liter measures how much liquid a container holds, and a minute measures time. Those three units answer different questions, so only millimeter belongs with the length units.

**51. A** — Spring, summer, and autumn are the seasons of the year, and winter is the fourth season. Snow and weather are things that happen during a season but are not seasons themselves. A calendar is the chart that shows the days and months, so none of those three words names a season the way the first three words do.

**52. B** — Addition, subtraction, and multiplication are the basic operations used to work with numbers, and division is the fourth operation. A fraction is a kind of number, a number is the thing being worked on, and an answer is the result of an operation. None of those three words is an operation itself, so only division belongs.

**53. B** — River, lake, and ocean are all bodies of water, and a pond is a small body of water too. An island and a beach are pieces of land beside or inside water, and a boat is a vehicle that floats on it. None of those three is water, so they do not match the group.

**54. A** — Noun, verb, and adjective are all parts of speech, which are kinds of words, and an adverb is another part of speech. A sentence and a paragraph are groups of words, and a letter is a single symbol in the alphabet. None of those three is a type of word, so only adverb belongs.

**55. C** — Mayor, principal, and captain are people who lead or are in charge of a group, and a manager is also in charge of workers. A student, a neighbor, and a visitor are members or guests of a group, not its leader. So manager is the only word that matches people with a leading role.

**56. D** — Generous, honest, and kind are all good qualities of a person's character, and respectful is another good quality. Greedy is a bad quality, since it means wanting too much. Tall describes how a person looks, and tired describes how a person feels right now, so neither is a character quality like the first three.

**57. C** — Hammer, saw, and drill are tools that a builder uses to make things, and a wrench is another tool. A nail and a board are materials that get used up in building. A builder is the person who works with the tools. So none of those three is a tool, and only the wrench belongs with the group.

**58. B** — Marathon, sprint, and relay are all kinds of running races, and hurdles is another race in which runners jump over barriers. A goalie plays in net, a stadium is a place, and a medal is a prize. None of those three is a running race, so only hurdles belongs with the group.

**59. D** — Petal, stem, and root are all parts of a flower or plant, and a leaf is another part of a plant. Soil is where a plant grows, a bee is an insect that visits flowers, and a garden is where plants grow. None of those three is a part of the plant itself, so only leaf belongs.

**60. A** — In  $4 : 9$  and  $7 : 12$ , the second number is 5 more than the first, since 4 plus 5 is 9 and 7 plus 5 is 12. Adding 5 to 10 gives 15. The choice 20 doubles 10, which fails for  $4 : 9$ . The choices 14 and 17 add 4 and 7, which match neither pair.

**61. A** — In  $3 : 12$  and  $5 : 20$ , the second number is 4 times the first, since 3 times 4 is 12 and 5 times 4 is 20. Multiplying 7 by 4 gives 28. The choice 21 triples 7, which works for neither pair. The choice 11 adds 4, and 35 multiplies by 5, so each uses a wrong rule.

**62. D** — In  $15 : 10$  and  $20 : 15$ , the second number is 5 less than the first, since 15 minus 5 is 10 and 20 minus 5 is 15. Taking 5 from 30 gives 25. The choice 35 adds 5 instead of subtracting. The choice 15 halves 30, and 20 subtracts 10, so neither follows the pairs.

**63. C** — In  $42 : 7$  and  $54 : 9$ , the second number is one sixth of the first, since 42 divided by 6 is 7 and 54 divided by 6 is 9. Dividing 72 by 6 gives 12. The choice 66 subtracts 6, the choice 432 multiplies by 6, and the choice 18 divides by 4, so each breaks the rule.

**64. B** — In  $9 : 90$  and  $4 : 40$ , the second number is 10 times the first, since 9 times 10 is 90 and 4 times 10 is 40. Multiplying 7 by 10 gives 70. The choice 16 adds 9, the choice 63 multiplies by 9, and the choice 700 multiplies by 100, so none of them follows the pairs.

**65. D** — In  $5 : 15$  and  $8 : 24$ , the second number is 3 times the first, since 5 times 3 is 15 and 8 times 3 is 24. Tripling 12 gives 36. The choice 17 adds 5, which fits only the first pair. The choice 48 multiplies by 4, and 24 only doubles 12, so both use the wrong factor.

**66. B** — In  $40 : 8$  and  $25 : 5$ , the second number is one fifth of the first, since 40 divided by 5 is 8 and 25 divided by 5 is 5. Dividing 60 by 5 gives 12. The choice 55 subtracts 5. The choice 300 multiplies by 5, and 15 divides by 4, so each is wrong.

**67. C** — In  $9 : 5$  and  $15 : 11$ , the second number is 4 less than the first, since 9 minus 4 is 5 and 15 minus 4 is 11. Subtracting 4 from 22 gives 18. The choice 26 adds 4. The choices 14 and 20 take away 8 and 2, which fit neither pair.

**68. A** — In  $12 : 3$  and  $32 : 8$ , the second number is one fourth of the first, since 12 divided by 4 is 3 and 32 divided by 4 is 8. Dividing 56 by 4 gives 14. The choice 52 subtracts 4, the choice 28 halves 56, and the choice 224 multiplies by 4, so each is wrong.

**69. A** — In  $50 : 25$  and  $30 : 15$ , the second number is half of the first, since half of 50 is 25 and half of 30 is 15. Half of 64 is 32. The choice 14 subtracts 50, which fails for the second pair. The choice 128 doubles 64 instead of halving it, and 62 subtracts only 2.

**70. C** — In  $100 : 90$  and  $70 : 60$ , the second number is 10 less than the first, since 100 minus 10 is 90 and 70 minus 10 is 60. Taking 10 from 45 gives 35. The choice 55 adds 10, and the choice 40 subtracts only 5. The choice 25 subtracts 20, so none of them follows the rule.

**71. D** — In  $13 : 28$  and  $20 : 35$ , the second number is 15 more than the first, since 13 plus 15 is 28 and 20 plus 15 is 35. Adding 15 to 32 gives 47. The choice 17 subtracts 15 instead of adding. The choice 52 adds 20, which fits neither pair, and the choice 45 adds 13.

**72. B** — In  $28 : 40$  and  $45 : 57$ , the second number is 12 more than the first, since 28 plus 12 is 40 and 45 plus 12 is 57. Adding 12 to 63 gives 75. The choice 51 subtracts 12, and the choice 126 doubles 63. The choice 73 adds only 10, which fails for both pairs.

**73. D** — In  $4 : 20$  and  $6 : 30$ , the second number is 5 times the first, since 4 times 5 is 20 and 6 times 5 is 30. Multiplying 9 by 5 gives 45. The choice 14 adds 5, and the choice 36 multiplies by 4. The choice 54 multiplies by 6, which matches only the second pair.

**74. B** — In  $80 : 20$  and  $48 : 12$ , the second number is one fourth of the first, since 80 divided by 4 is 20 and 48 divided by 4 is 12. Dividing 36 by 4 gives 9. The choice 32 subtracts 4, the choice 144 multiplies by 4, and the choice 18 halves 36, so none fits.

**75. C** — In  $17 : 8$  and  $25 : 16$ , the second number is 9 less than the first, since 17 minus 9 is 8 and 25 minus 9 is 16. Taking 9 from 31 gives 22. The choice 40 adds 9 instead of subtracting. The choice 23 subtracts only 8, and 15 subtracts 16, so each fails.

**76. A** — Both pairs double the first number and then add 3: 2 doubled is 4, plus 3 is 7, and 5 doubled is 10, plus 3 is 13. Doubling 8 gives 16, and adding 3 gives 19. The choice 16 forgets to add 3, the choice 11 only adds 3, and the choice 24 triples 8.

**77. A** — In  $4 : 16$  and  $6 : 36$ , each number is multiplied by itself, since 4 times 4 is 16 and 6 times 6 is 36. So 9 times 9 gives 81. The choice 36 multiplies by 4, which fits only the first pair, and the choice 54 multiplies by 6, which fits only the second.

**78. C** — Both pairs double the first number and then subtract 1: 4 doubled is 8, minus 1 is 7, and 9 doubled is 18, minus 1 is 17. Doubling 12 gives 24, and subtracting 1 gives 23. The choice 24 forgets to subtract 1. The choice 25 adds 1 after doubling, and 20 adds 8, which fits only the second pair.

**79. B** — Both pairs halve the first number and then add 1: half of 10 is 5, plus 1 is 6, and half of 20 is 10, plus 1 is 11. Half of 36 is 18, and adding 1 gives 19. The choice 18 forgets to add 1. The choice 26 subtracts 10, and 38 adds 2, so neither follows the pairs.

**80. D** — To find the missing number, subtract 26 from 61, which gives 35, and 26 plus 35 checks back to 61. The choice 87 adds 26 and 61 together instead of subtracting. The choices 34 and 36 are each one away from the right answer, so they give sums of 60 and 62, and neither one equals 61.

**81. B** — The missing number is what you start with before 9 is taken away, so add 9 to 26 to get 35, and 35 minus 9 checks back to 26. The choice 17 subtracts 9 from 26, which uses the wrong operation. The choice 45 is 10 too high, and the choice 34 is one too low.

**82. A** — Division undoes multiplication, so divide 72 by 8 to get 9, and 8 times 9 checks back to 72. The choice 64 subtracts 8 from 72, and the choice 80 adds 8 to 72, so both use the wrong operation. The choice 8 repeats the number already in the problem, and 8 times 8 is only 64.

**83. C** — Adding works, because 9 plus 6 equals 15. Subtracting gives 3, multiplying gives 54, and dividing gives a number between 1 and 2, and none of those equals 15. Trying every sign on 9 and 6 shows that plus is the only one that completes the statement, so the others all give a different result.

**84. D** — Check which number divides 72 into 8 equal parts of size 8: 72 divided by 9 is 8, so the blank is 9. The choice 64 subtracts 8 from 72, and the choice 80 adds 8 to 72, so both use the wrong operation. The choice 8 repeats the answer, since 72 divided by 8 is 9, not 8.

**85. D** — To undo dividing by 5, multiply 7 by 5, which gives 35, and 35 divided by 5 checks back to 7. The choice 12 adds 5 to 7, and the choice 2 subtracts 5 from 7, so both use the wrong operation. The choice 36 is one more than the right answer.

**86. B** — First work out the right side: 50 minus 9 is 41. Then find what adds to 12 to make 41, which is 29, since 29 plus 12 equals 41. The choice 41 is only the value of the right side. The choice 38 subtracts 12 from 50, and the choice 28 is one too small.

**87. C** — Multiplying works, because 5 times 8 equals 40. Adding gives 13, subtracting gives 3 less than zero, which is not a whole number, and dividing gives a number less than 1, so none of those equals 40. Checking each sign on the numbers 5 and 8 shows that times is the only one that fits.

**88. A** — Work backward: take away 4 from 28 to get 24, then divide by 3 to get 8, and 8 times 3 plus 4 checks to 28. The choice 24 stops after subtracting and never divides by 3. The choice 7 is one too small, giving 25, and the choice 10 gives 34, so neither makes the equation true.

**89. D** — Three equal squares add to 27, so one square is 27 divided by 3, which is 9. The question asks for square plus 4, so 9 plus 4 is 13. The choice 9 finds the square but forgets to add 4. The choice 31 adds 4 to 27 directly, and 17 adds 8 to the square.

**90. B** — First work out 3 times 9, which is 27. Then find the amount taken from 56 to leave 27: 56 minus 27 is 29, and 56 minus 29 checks back to 27. The choice 83 adds 56 and 27 instead. The choice 27 only repeats the product, and the choice 30 is one too high.

**91. A** — First work out 6 times 5, which is 30. Then find what adds to 15 to make 30, which is 15, since 15 plus 15 equals 30. The choice 45 adds 15 and 30 together instead of subtracting. The choice 30 only repeats the product, and the choice 16 is one too high, so none of them works.

**92. C** — Dividing works, because 28 divided by 7 equals 4. Adding makes 35, subtracting makes 21, and multiplying makes 196, so none of those equals 4. Trying every sign on the numbers 28 and 7 shows

that divided by is the only one that completes the statement, so the other three signs each give a different answer.

**93. D** — Work backward: subtract 9 from 14 to get 5, then multiply by 4 to get 20, since 20 divided by 4 is 5 and 5 plus 9 is 14. The choice 5 stops before multiplying by 4. The choice 24 is 4 too high and gives 15. The choice 36 gives 18, which is not 14.

**94. C** — A number times itself equals 36 when it is 6, since 6 times 6 is 36. The question asks for triangle plus 3, so 6 plus 3 is 9. The choice 6 finds the triangle but forgets to add 3. The choice 12 doubles 6 instead, and the choice 39 adds 3 to 36 rather than to the triangle.

**95. B** — Take the 30 off first: 90 minus 30 is 60, and the blank must remove enough to leave 20, so 60 minus 20 gives 40. Check: 90 minus 40 is 50, minus 30 is 20. The choice 60 forgets the 20, the choice 50 is only the middle result, and 10 is just 30 minus 20, so none works.

**96. A** — Add 4 to 3 to see that 63 divided by the blank must equal 7, so the blank is 9, since 63 divided by 9 is 7. The choice 7 is the quotient and not the blank. The choice 21 divides 63 by 3, and 8 does not divide 63 evenly.

**97. C** — Take the 6 away from 30 to get 24, which is two circles added together, so the answer is 24 directly. Each circle is 12, and doubling 12 gives 24. The choice 12 stops at one circle, and the choice 36 adds 6 to 30, so neither matches. The choice 18 uses only half of 36 and does not fit.

**98. A** — Undo the division first by doubling 9 to get 18, then take away 6 to get 12, since 12 plus 6 is 18 and 18 divided by 2 is 9. The choice 18 stops after doubling and forgets to subtract 6. The choice 15 gives 21 divided by 2, and 3 gives 4 and a half, so neither equals 9.

**99. B** — The numbers go up by 4 each time, since 9 plus 4 is 13, 13 plus 4 is 17, and 17 plus 4 is 21. Adding 4 to 21 gives 25. The choice 24 adds only 3, and the choice 29 adds 8, which skips a step. The choice 26 adds 5, so none fits.

**100. D** — The numbers go down by 5 each time, since 88 minus 5 is 83, 83 minus 5 is 78, and 78 minus 5 is 73. Taking 5 from 73 gives 68. The choice 63 subtracts 10, which skips a step, and the choice 58 subtracts 15. The choice 71 subtracts only 2, so none fits.

**101. C** — Each number is 12 more than the one before, since 12, 24, 36, and 48 are counting by twelves. Adding 12 to 48 gives 60. The choice 54 adds only 6, and the choice 72 adds 24, which skips a step. The choice 56 adds 8, so none of those three follows the steady step of 12.

**102. A** — Each number is double the one before it: 11 doubled is 22, 22 doubled is 44, and 44 doubled is 88. Doubling 88 gives 176. The choice 132 adds 44, and the choice 99 adds 11, which would suit a steady step but not doubling. The choice 264 triples 88, so it uses the wrong multiplier.

**103. D** — The gaps grow by 1 each time: plus 1, plus 2, plus 3, plus 4. The next gap is plus 5, so 18 plus 5 is 23. The choice 22 repeats a gap of 4, and the choice 24 uses a gap of 6, so both break the growing pattern. The choice 36 doubles 18.

**104. B** — Each number is half of the one before it: half of 112 is 56, half of 56 is 28, and half of 28 is 14. Half of 14 is 7. The choice 4 subtracts 10, which is a steady step and not halving. The choice 12 subtracts only 2, and the choice 28 repeats a term.

**105. D** — The numbers go up by 3 each time: 5, 8, 11, 14, and 17. Adding 3 to 17 gives 20. The choice 19 adds only 2, and the choice 22 adds 5, so each breaks the steady step. The choice 23 adds 6, which is the size of two steps and skips over the correct next term.

**106. B** — Each number is double the one before it: 1, 2, 4, 8, and 16. Doubling 16 gives 32. The choice 24 adds 8, which would suit a steady step but not doubling. The choice 20 adds only 4, and the choice 31 is one less than the double, so none of them follows the pattern of doubling every time.

**107. A** — Two patterns are mixed together. Every second number is 10, and the other numbers are 2, 4, 6, which go up by 2. The next spot belongs to the rising pattern, so the answer is 8. The choice 10 would be the other pattern. The choice 12 skips a term, and 7 does not fit the steps of 2.

**108. C** — The gaps shrink by 1 each time: minus 9, minus 8, minus 7, minus 6. The next gap is minus 5, so 20 minus 5 is 15. The choice 14 subtracts 6 again, and the choice 16 subtracts only 4, which shrinks too fast. The choice 10 subtracts 10, which grows the gap and breaks the pattern.

**109. B** — The gaps are the odd numbers going up by 2: plus 1, plus 3, plus 5, plus 7. The next gap is plus 9, so 19 plus 9 is 28. The choice 26 uses a gap of 7 again, and the choice 27 uses a gap of 8, which is not odd. The choice 38 doubles 19.

**110. D** — The numbers go down by 6 each time, since 100 minus 6 is 94, 94 minus 6 is 88, and 88 minus 6 is 82. Taking 6 from 82 gives 76. The choice 78 subtracts only 4, and the choice 72 subtracts 10, so each breaks the pattern. The choice 70 subtracts 12, which skips two steps.

**111. A** — Each number is double the one before it, minus 1: 5 doubled is 10, minus 1 is 9, and 9 doubled is 18, minus 1 is 17. Doubling 65 gives 130, and subtracting 1 gives 129. The choice 130 forgets to subtract 1. The choice 97 adds 32, and 81 adds 16, so neither follows the rule.

**112. C** — The gaps grow by 1 each time: plus 1, plus 2, plus 3, plus 4. The next gap is plus 5, so 19 plus 5 is 24. The choice 23 repeats a gap of 4, and the choice 25 uses a gap of 6, so both break the growing pattern. The choice 38 doubles 19.

**113. C** — Two patterns are mixed together. The first, third, and fifth numbers are 10, 20, 30, which go up by 10, while the others are 1, 2, 3. The next spot belongs to the tens, so 30 plus 10 is 40. The choice 4 is the next of the other pattern. The choices 50 and 33 do not fit.

**114. D** — Each number is 3 times the one before it: 6 tripled is 18, 18 tripled is 54, and 54 tripled is 162. Tripling 162 gives 486. The choice 324 doubles 162, and the choice 216 adds 54, so neither uses the multiplier of 3. The choice 480 is close but does not match, because 3 times 162 is exactly 486.

**115. A** — The pattern alternates between doubling and subtracting 2: 4 doubled is 8, 8 minus 2 is 6, 6 doubled is 12, 12 minus 2 is 10, and 10 doubled is 20. The next step subtracts 2, so 20 minus 2 is 18. The choice 40 doubles again, 22 adds 2, and 16 subtracts 4.

**116. B** — Each number is one third of the one before it: 405 divided by 3 is 135, 135 divided by 3 is 45, and 45 divided by 3 is 15. Dividing 15 by 3 gives 5. The choice 3 subtracts 12, which is not a division. The choice 10 subtracts only 5, and 30 doubles 15.

**117. C** — The gaps grow by 2 each time: plus 2, plus 4, plus 6, plus 8. The next gap is plus 10, so 27 plus 10 is 37. The choice 35 uses a gap of 8 again, and the choice 36 uses a gap of 9, which is not part of the pattern. The choice 45 adds 18.

**118. A** — The gaps double each time: plus 1, plus 2, plus 4, plus 8. The next gap is plus 16, so 22 plus 16 is 38. The choice 30 uses a gap of 8 again, and the choice 36 uses a gap of 14, which is not a doubling. The choice 44 doubles 22, which ignores the growing gaps.

**119. B** — Across the top row, the square keeps its shape and size, and only its shade changes from gray to white. The same change applied to the large gray star gives a large white star. The large gray star means nothing changed, the small white star changes the size, and the large white square changes the shape.

**120. D** — In the top row, the square keeps its shape but shrinks from large to small. Applying the same change to the large heart gives a small heart. The large heart means no change happened, the small square changes the shape back to the first row, and the small star swaps in a shape that never appeared.

**121. B** — The circle in the top row keeps its shape, and its shade flips from black to white. Applying that same flip to the black square gives a white square. The black square would show no change. The white circle copies the shade but keeps the top-row shape, and the white triangle changes the shape, which the top row never does.

**122. C** — From the first figure to the second in the top row, the shape stays the same and the number doubles from one to two. Applying that change to one small square gives two small squares. One square means no change, three squares adds too many, and two small dots changes the shape back, so each of those fails the rule.

**123. D** — In the top row, the arrow turns a quarter turn clockwise, so right becomes down. Turning the left arrow a quarter turn clockwise makes it point up. The arrow pointing left means no turn happened. The arrow pointing right turns it a half turn, and the arrow pointing down copies the top-right figure without turning the bottom arrow at all.

**124. A** — In the top row, the shape stays a circle while the size grows from small to medium to large. The bottom row keeps black squares so the last figure is a large black square. The large white square has the wrong shade, the medium black square repeats the middle, and the large black circle has the wrong shape.

**125. C** — The top row adds one more triangle each step: one, two, three. The bottom row uses stars and follows the same count, so the missing figure shows three stars. Four stars goes one step too far. Three triangles has the right number but the wrong shape, and two stars repeats the middle figure of the bottom row.

**126. D** — In the top row the shade gets darker from white to gray to black while the shape stays the same. The bottom row uses circles, so the last figure must be a black circle. The gray circle repeats the middle figure. The black square and the white square use the right shades but the wrong shape.

**127. A** — In the top row, the shape stays the same and the dot inside is removed. Applying that change to the square with a dot gives a square with no dot. The square with a dot shows no change. The circle with no dot copies the top-right figure, and the triangle with no dot changes the shape.

**128. B** — Each row uses the same three shapes once each. The top row has circle, square, and triangle, and the bottom row already shows a square and a triangle, so the circle is the only shape left. A square or a triangle would repeat a shape in the bottom row, and a star is a new shape.

**129. C** — Every row keeps one shape and grows from small to medium to large. The third row has triangles, so the missing figure is a large triangle. The medium triangle repeats the middle of the row, and the large square and large circle have the right size but copy the shapes from the rows above.

**130. D** — Each row keeps one shade, and the shapes go circle, square, triangle from left to right. The third row is black, so the last figure is a black triangle. The gray triangle and white triangle use the shades of other rows, and the black circle has the right shade but repeats the first shape of the row.

**131. B** — Each row and each column uses the circle, the square, and the star exactly once. The last column already has a star and a square, so the circle is missing. A square or a star would repeat a shape in that column, and a heart is a new shape that does not appear anywhere else in the grid.

**132. A** — The bottom row has black dots, and each count is double the count above it: two above one, four above two. Doubling three gives six, so the missing figure is six black dots. Three black dots copies the top count, five black dots adds only two, and six white dots has the right count but the wrong shade.

**133. C** — The top row shows the same shape getting one dot added inside. The same change applied to the plain triangle gives a triangle with a dot inside. The plain triangle shows no change. The square with a dot copies the top-right figure, and two dots adds too many, since only one dot was added.

**134. B** — In every row, each box has one more dot than the box on its left, and each row starts with one more dot than the row above. The third row goes three, four, and then five. Four dots repeats the middle box. Six dots jumps by two, and three dots repeats the first box.

**135. D** — Each row keeps one shape and one shade while the size grows from small to medium to large. The third row has gray stars, so the last figure is a large gray star. The large white star takes the shade of the second row, and the large gray circle takes the shape of the first row.

**136. A** — The top row turns a quarter turn clockwise at each step: up, right, down. The bottom row follows the same turns, so after up and right the triangle points down. Pointing left would be one more turn. Pointing up and pointing right repeat the first two figures, so each of those ignores the turning pattern of the row.

**137. C** — Each row keeps one shape and uses the white, gray, and black shades once each, shifting one place to the left in each new row. The third row has triangles in black and white, so gray is missing. A

black triangle or a white triangle repeats a shade, and the gray square has the right shade but the wrong shape.

**138. A** — Every row and column uses each shape once and each shade once. The last column has a black triangle and a white square, so the circle and the gray shade are missing. A gray circle is the only match. The gray square repeats a square, the white circle repeats white, and the black circle repeats black.

**139. B** — Folding the notebook paper in half makes two layers, and the punch goes through both layers at once. When the paper is opened, each layer shows one hole, so there are two holes, placed on either side of the crease. One hole would mean a layer was missed, and three or four would need extra folds.

**140. D** — The fold makes two layers, so each punch makes two holes in the opened sheet. Two punches therefore make two times two, which is four holes. Two holes would count only the punches and ignore the second layer. Three holes does not match the pattern of pairs, and six holes would need three layers instead of two.

**141. A** — Two folds make four layers, since two layers doubled is four. One punch goes through all four layers, so the opened sheet shows four holes. Two holes would be the count after only one fold. Three holes does not fit the pattern of doubling, and eight holes would need a third fold, which the sheet does not have.

**142. B** — A letter fold makes three layers, and the punch goes through each of them once. The strip therefore shows one hole in each section, so there are three holes when it is opened. One hole ignores the extra layers, and two holes would be right for a fold in half. Six holes would need six layers.

**143. D** — A diagonal fold makes two layers, and the punch goes through both. When the sheet is opened, each layer shows a hole, one on each side of the diagonal crease. One hole would mean a layer was missed, while three or four holes would need more folds, and this sheet is folded only once.

**144. C** — Folding in half makes two layers, so each punch makes two holes when the paper is opened. Three punches give three times two, which is six holes. Three holes counts only the punches and ignores the second layer. Five holes does not follow the doubling pattern, and nine holes would be right for three layers.

**145. B** — When the paper is folded left to right, the folded paper has its crease at the center and its open edge at the right. The hole near that edge goes through both layers. Opening the paper copies the hole across the crease, so there is one near each side edge. The others place the holes wrongly.

**146. A** — The hole is close to the fold, so its copy on the other layer is also close to the fold, on the opposite side of the crease. Opening the paper shows two holes near the middle line, one above it and one below it. Holes near the top edge are too far away, and one hole ignores the second layer.

**147. D** — Two folds make four layers, so every punch makes four holes in the opened sheet. Two punches give two times four, which is eight holes. Four holes counts only one punch, and six holes does not match four layers. Two holes counts only the number of punches, which ignores the layers.

**148. C** — Two folds make four layers, so every punch makes four holes in the opened paper. Three punches give three times four, which is twelve holes. Seven holes adds the punches to the layers instead of multiplying. Nine holes would be right for three layers, and sixteen holes would need four punches, so neither matches.

**149. A** — Three layers mean each punch makes three holes in the opened strip. With three punches, the total is three times three, which is nine holes. Three holes counts only the punches. Six holes would be right for two layers, and twelve holes would need four layers, so neither one matches a strip folded into thirds.

**150. B** — The first punch goes through two layers and makes two holes after the paper is opened. The second punch goes through only one layer, since the sheet is flat, so it adds one hole. Together there are three holes. Two holes forgets the extra punch, four holes treats both punches as double, and one hole counts only the last punch.

**151. C** — The first punch goes through four layers and makes four holes when the paper is opened. The two extra punches go through a single flat sheet, so they add two more holes. Four plus two gives six holes. Four holes forgets the extra punches, three holes counts only punches, and twelve holes wrongly doubles the later punches too.

**152. D** — Each fold doubles the layers, so three folds give two, then four, then eight layers. One punch goes through all eight layers and makes eight holes in the opened sheet. Four holes would be right for only two folds, and six holes does not follow the doubling pattern. Sixteen holes would need four folds.

**153. B** — The punch goes through two layers, and the crease runs across the middle, so the second hole is a mirror image above or below the first one. Both stay near the left edge, one above the other. One hole ignores the second layer. The right edge is the wrong side, and the middle is far from the left edge.

**154. D** — The corner that is an original paper corner is copied by both folds, so opening the paper puts one hole near each of the four corners. The holes around the center would come from a punch near the point where both creases meet. One hole or two holes would skip layers, since the four layers each show a hole.

**155. A** — The creases meet at the center of the sheet, so a hole punched near that corner is copied across both creases. Opening the paper shows four holes close to the center, forming a small square. Holes near the paper corners would come from a punch at the opposite corner. One hole or two would skip layers.

**156. C** — Folding in half makes two layers, and folding the doubled strip in thirds multiplies the layers by three, so there are six layers. One punch makes a hole in each layer, so the opened paper has six holes. Three holes would count only the thirds. Five holes does not follow multiplying, and twelve holes would need twelve layers.

**157. D** — Three folds make eight layers, so each punch makes eight holes in the opened paper. Two punches give two times eight, which is sixteen holes. Eight holes counts only one punch. Ten holes adds the punches to the layers instead of multiplying, and twenty-four holes would need three punches, so none of them matches.

**158. C** — The shapes are all different, so shape is not the rule. What every figure shares is that it is large and black. The large black star keeps both features. The small black star is the wrong size, the large white star is the wrong shade, and the large gray star is also not black.

**159. A** — A square, a rectangle, and a diamond all have four straight sides. A trapezoid also has four sides, so it belongs with them. A triangle has three sides, and a pentagon has five sides, so both have the wrong number. A circle has no straight sides at all, so it breaks the rule of four-sided figures.

**160. B** — The outer shapes are different, so shape does not matter. Each figure has exactly three small squares inside it. A heart with three small squares keeps that feature. The heart with two squares and the heart with four squares have the wrong count, and the heart with three circles has the right count but the wrong inner shape.

**161. D** — A triangle, a square, and a pentagon are all made only of straight sides. A hexagon is also made only of straight sides, so it belongs with them. The circle and the oval have smooth curved edges and no straight sides, and the half circle has one straight edge but also a curve, so none of them follows the rule.

**162. C** — Each figure has exactly two stripes, and only the outer shape changes. A star with two stripes keeps the shared feature. The stars with one stripe or three stripes have the wrong count, and a star with no stripes has none, so each of those misses the pattern that the three figures share.

**163. B** — The three figures are different objects, but each one points straight up. A pencil pointing up shares that direction. The other three choices are the same pencil, but they point down, left, and right, so each one turns the figure away from the upward direction that the first three have in common.

**164. A** — Each figure is small, gray, and at the bottom of its box, while the shape changes. Only the first choice has all three features. The second heart sits at the top, the third heart is large, and the fourth heart is black, so each of them breaks one of the shared features.

**165. A** — The shape changes, but each figure has exactly two shapes, and both are white. Two white stars keeps the count and the shade. Three white stars and one white star have the wrong count. Two black stars has the right count but the wrong shade, so only the first choice matches both features.

**166. D** — A circle, a square, and a triangle are all closed shapes, because their lines meet to enclose an inside. A diamond is closed too, so it belongs with them. The letter C shape has an opening, the zigzag line has two loose ends, and the straight line has two ends, so each one fails to enclose any space.

**167. C** — The shapes change, but each figure has only its left half filled in black. A star with its left half black keeps that feature. The star with the right half black fills the wrong side, the star with the top half black fills the wrong part, and the all-black star fills the whole figure.

**168. B** — The shapes differ, but every figure is drawn with a thick outline. The star with a thick line is the only choice that keeps that feature. The thin line, the dotted line, and the double line each change how the outline looks, so none of them matches the thick outline shared by the first three.

**169. B** — The side counts are three, five, and seven, and every one is an odd number. A shape with nine sides is also odd, so it belongs with them. Four, six, and eight are all even numbers, so those shapes break the pattern. Only the nine-sided shape keeps the odd count of sides.

**170. C** — Each box holds exactly three small shapes lined up in a row, and only the kind of shape changes. The box with three stars in a row keeps both the count and the row. Two stars and four stars have the wrong count, and three stars in a column are lined up the wrong way.

**171. A** — In every figure a small shape sits inside a large shape. A small heart inside a large oval keeps that arrangement. The second choice puts the heart beside the oval, and the fourth puts it under the oval, so neither is inside. The third puts a large heart beside a small oval.

**172. D** — The shapes change, but the colors always go black, white, black from left to right. Only the first choice repeats that order. White, black, white swaps the colors, black, black, white puts the white shape at the end, and white, white, black has the wrong first two shades, so each of those breaks the pattern.

**173. C** — Each figure is divided into exactly four equal parts, and the outer shape changes. A rectangle cut into four equal parts keeps that feature. The rectangles cut into two, three, or six equal parts all have the wrong number of parts, so none of them matches the shared rule of four equal pieces.

**174. A** — Each figure is large and black, with a small white dot inside it. The first choice keeps all of these features. The second choice has a black dot that would not show up, the third star is white, and the fourth star is small, so each of those changes one of the shared features of the first three figures.

**175. B** — Each figure has a small shape above a large matching shape of the same color. The first choice follows this exactly. The second choice puts the large star on top, the third pairs a white star with a black star, and the fourth pairs a star with a heart, so each of them breaks one part of the pairing.

**176. D** — Each figure has two matching shapes with a line connecting them. Two stars joined by a line keeps all of these features. The second choice has no connecting line, the third mixes two different shapes, and the fourth has three shapes instead of two, so each of those breaks one of the shared features.