

# PRACTICE EXAM 12: 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. Screwdriver is to screw as hammer is to \_\_\_\_.

- A. curtain
- B. ribbon
- C. bucket
- D. nail

2. Judge is to courthouse as doctor is to \_\_\_\_.

- A. hospital
- B. bakery
- C. museum
- D. garage

3. Roof is to house as lid is to \_\_\_\_.

- A. table
- B. shoe
- C. jar
- D. river

4. Saw is to wood as scissors is to \_\_\_\_.

- A. water
- B. paper
- C. smoke
- D. sand

5. Brick is to wall as page is to \_\_\_\_.

- A. book
- B. pencil
- C. glue
- D. backpack

6. Garage is to cars as library is to \_\_\_\_.

- A. soup
- B. books
- C. songs
- D. fish

7. Needle is to sew as pencil is to \_\_\_\_.

- A. cut
- B. dig
- C. write
- D. bake

8. Shovel is to dig as broom is to \_\_\_\_.

- A. paint
- B. measure
- C. whistle
- D. sweep

9. Bridge is to river as tunnel is to \_\_\_\_.

- A. cloud
- B. mountain
- C. sidewalk
- D. kitchen

10. Skyscraper is to tall as cottage is to \_\_\_\_.

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

11. Ruler is to length as scale is to \_\_\_\_.

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

12. Mason is to brick as carpenter is to \_\_\_\_.

- A. glass

- B. cloth
- C. paper
- D. wood

**13.** Pattern is to dress as blueprint is to \_\_\_\_.

- A. hammer
- B. ladder
- C. building
- D. paint

**14.** Compass is to direction as thermometer is to \_\_\_\_.

- A. height
- B. weight
- C. color
- D. temperature

**15.** Bulldozer is to push as crane is to \_\_\_\_.

- A. paint
- B. lift
- C. sweep
- D. sew

**16.** Tower is to castle as mast is to \_\_\_\_.

- A. ship
- B. cave
- C. kitchen
- D. bicycle

**17.** Faucet is to water as switch is to \_\_\_\_.

- A. soap
- B. pipe
- C. roof
- D. light

**18.** Plumber is to pipe as electrician is to \_\_\_\_.

- A. wire
- B. brick
- C. glue
- D. bucket

**19.** Foundation is to building as roots are to \_\_\_\_.

- A. leaf
- B. tree
- C. bird
- D. fruit

**20.** Scaffold is to builder as stage is to \_\_\_\_.

- A. ticket
- B. seat
- C. actor
- D. popcorn

**21.** The workers wore hard \_\_\_\_ to protect their heads at the building site.

- A. hats
- B. mittens
- C. boots
- D. scarves

**22.** Dad used a \_\_\_\_\_ to measure the board before he cut it.

- A. spoon
- B. ruler
- C. kettle
- D. pillow

**23.** The tall \_\_\_\_\_ in the city had more than fifty floors.

- A. puddle
- B. sandwich
- C. whisper
- D. skyscraper

**24.** She turned the handle so the door would \_\_\_\_\_.

- A. dance
- B. bloom
- C. open
- D. melt

**25.** Before painting, Mia covered the floor with an old sheet to \_\_\_\_\_ it from drips.

- A. protect

- B. invite
- C. borrow
- D. forget

**26.** The builder used a level to make sure the shelf was perfectly \_\_\_\_.

- A. dizzy
- B. hungry
- C. flat
- D. loud

**27.** The old barn was so \_\_\_\_ that its walls creaked and its roof leaned.

- A. fresh
- B. wobbly
- C. speedy
- D. tasty

**28.** The carpenter sanded the board until it was \_\_\_\_, so it would not give anyone a splinter.

- A. rough
- B. crooked
- C. heavy
- D. smooth

**29.** You can \_\_\_\_ books from the town library and keep them for two weeks.

- A. bake
- B. borrow
- C. paint
- D. throw

**30.** The bridge was closed for repairs, so drivers had to take a different \_\_\_\_.

- A. flavor
- B. song
- C. route
- D. season

**31.** The firefighters raised a long ladder so they could \_\_\_\_ the tenth floor.

- A. reach
- B. whisper
- C. drink
- D. tickle

**32.** The castle walls were built thick and high to \_\_\_\_ the town from attackers.

- A. tease
- B. borrow
- C. invite
- D. defend

**33.** The saw could barely cut the log because its \_\_\_\_ were dull.

- A. roots
- B. petals
- C. teeth
- D. windows

**34.** The crew worked \_\_\_\_ all summer so the school would be ready by September.

- A. lazily
- B. diligently
- C. rarely
- D. carelessly

**35.** The \_\_\_\_\_ drew a careful plan before the \_\_\_\_\_ began to build the house.

- A. architect, workers
- B. singer, farmers
- C. teacher, dancers
- D. chef, pilots

**36.** The tiny shed was so \_\_\_\_\_ that only one person could fit inside.

- A. spacious
- B. enormous
- C. roomy
- D. cramped

**37.** The hardware store carries a wide \_\_\_\_\_ of tools, from hammers to wrenches.

- A. silence
- B. weather
- C. variety
- D. dream

**38.** The ancient temple has \_\_\_\_\_ for hundreds of years, even through storms.

- A. wandered

- B. whispered
- C. borrowed
- D. endured

**39.** Engineers test each bridge carefully because a weak design could \_\_\_\_ under heavy trucks.

- A. collapse
- B. blossom
- C. giggle
- D. sparkle

**40.** The new cabin is \_\_\_\_ enough to survive a harsh winter, with thick logs and a strong roof.

- A. fragile
- B. sturdy
- C. flimsy
- D. delicate

**41.** Which word belongs with: hammer, saw, wrench?

- A. drill
- B. brick
- C. window
- D. roof

**42.** Which word belongs with: house, cabin, cottage?

- A. hammer
- B. paintbrush
- C. garden
- D. bungalow

**43.** Which word belongs with: door, window, wall?

- A. pencil
- B. roof
- C. bucket
- D. nurse

**44.** Which word belongs with: school, library, museum?

- A. ruler
- B. carpenter
- C. theatre
- D. painting

**45.** Which word belongs with: pencil, pen, marker?

- A. paper
- B. crayon
- C. notebook
- D. backpack

**46.** Which word belongs with: kitchen, bedroom, bathroom?

- A. sidewalk
- B. carpet
- C. basement
- D. mailbox

**47.** Which word belongs with: bricks, wood, concrete?

- A. builder
- B. blueprint
- C. tower
- D. steel

**48.** Which word belongs with: shovel, rake, hoe?

- A. trowel
- B. flower
- C. soil
- D. seeds

**49.** Which word belongs with: tape measure, ruler, yardstick?

- A. pencil
- B. scissors
- C. meter stick
- D. stapler

**50.** Which word belongs with: tower, skyscraper, lighthouse?

- A. steeple
- B. basement
- C. puddle
- D. driveway

**51.** Which word belongs with: cathedral, mosque, temple?

- A. factory

- B. airport
- C. bakery
- D. chapel

**52.** Which word belongs with: saw, axe, chainsaw?

- A. hammer
- B. hatchet
- C. ladder
- D. bucket

**53.** Which word belongs with: bridge, tunnel, highway?

- A. railway
- B. kitchen
- C. library
- D. chimney

**54.** Which word belongs with: factory, mill, workshop?

- A. museum
- B. airport
- C. bakery
- D. stadium

**55.** Which word belongs with: apartment, condo, townhouse?

- A. elevator
- B. duplex
- C. landlord
- D. rent

**56.** Which word belongs with: stairs, elevator, escalator?

- A. chimney
- B. carpet
- C. doorbell
- D. ramp

**57.** Which word belongs with: barn, shed, greenhouse?

- A. tractor
- B. silo
- C. fence
- D. hay

**58.** Which word belongs with: nails, screws, bolts?

- A. hammer
- B. drill
- C. tacks
- D. toolbox

**59.** Which word belongs with: blueprint, floor plan, sketch?

- A. brick
- B. helmet
- C. lumber
- D. drawing

**60.** Two number pairs follow the same rule:  $4 : 9$  and  $7 : 12$ . Which number goes with 15 ( $15 : ?$ ) in the same way?

- A. 20
- B. 18
- C. 75
- D. 19

**61.** Two number pairs follow the same rule:  $6 : 24$  and  $9 : 36$ . Which number goes with 7 ( $7 : ?$ ) in the same way?

- A. 11
- B. 21
- C. 42
- D. 28

**62.** Two number pairs follow the same rule:  $17 : 11$  and  $25 : 19$ . Which number goes with 31 ( $31 : ?$ ) in the same way?

- A. 25
- B. 37
- C. 23
- D. 28

**63.** Two number pairs follow the same rule:  $40 : 5$  and  $56 : 7$ . Which number goes with 72 ( $72 : ?$ ) in the same way?

- A. 64
- B. 9
- C. 10
- D. 576

**64.** Two number pairs follow the same rule:  $5 : 15$  and  $8 : 24$ . Which number goes with 11 ( $11 : ?$ ) in the same way?

- A. 22
- B. 21
- C. 33
- D. 36

**65.** Two number pairs follow the same rule:  $13 : 26$  and  $21 : 42$ . Which number goes with 34 ( $34 : ?$ ) in the same way?

- A. 47
- B. 44
- C. 102
- D. 68

**66.** Two number pairs follow the same rule:  $28 : 40$  and  $35 : 47$ . Which number goes with 52 ( $52 : ?$ ) in the same way?

- A. 59
- B. 64
- C. 62
- D. 80

**67.** Two number pairs follow the same rule:  $21 : 7$  and  $36 : 12$ . Which number goes with 54 ( $54 : ?$ ) in the same way?

- A. 18
- B. 33
- C. 162
- D. 51

**68.** Two number pairs follow the same rule:  $18 : 7$  and  $30 : 19$ . Which number goes with 44 ( $44 : ?$ ) in the same way?

- A. 22
- B. 55
- C. 33
- D. 26

**69.** Two number pairs follow the same rule:  $2 : 14$  and  $5 : 35$ . Which number goes with 9 ( $9 : ?$ ) in the same way?

- A. 63
- B. 16
- C. 54
- D. 72

**70.** Two number pairs follow the same rule:  $50 : 41$  and  $38 : 29$ . Which number goes with 27 ( $27 : ?$ ) in the same way?

- A. 36
- B. 17
- C. 19
- D. 18

**71.** Two number pairs follow the same rule:  $9 : 81$  and  $4 : 16$ . Which number goes with 7 ( $7 : ?$ ) in the same way?

- A. 14
- B. 49
- C. 63
- D. 21

**72.** Two number pairs follow the same rule:  $25 : 5$  and  $144 : 12$ . Which number goes with 81 ( $81 : ?$ ) in the same way?

- A. 8
- B. 72
- C. 9
- D. 27

**73.** Two number pairs follow the same rule:  $6 : 20$  and  $9 : 29$ . Which number goes with 12 ( $12 : ?$ ) in the same way?

- A. 36
- B. 14
- C. 24
- D. 38

**74.** Two number pairs follow the same rule:  $10 : 7$  and  $16 : 10$ . Which number goes with 30 ( $30 : ?$ ) in the same way?

- A. 15
- B. 20
- C. 17
- D. 21

**75.** Two number pairs follow the same rule:  $3 : 17$  and  $5 : 27$ . Which number goes with 8 ( $8 : ?$ ) in the same way?

- A. 40
- B. 42
- C. 45
- D. 36

**76.** Two number pairs follow the same rule:  $7 : 3$  and  $15 : 7$ . Which number goes with 23 ( $23 : ?$ ) in the same way?

- A. 11
- B. 12
- C. 15
- D. 13

**77.** Two number pairs follow the same rule:  $8 : 31$  and  $11 : 43$ . Which number goes with 14 ( $14 : ?$ ) in the same way?

- A. 56
- B. 55
- C. 42
- D. 53

**78.** Two number pairs follow the same rule:  $20 : 38$  and  $35 : 68$ . Which number goes with 50 ( $50 : ?$ ) in the same way?

- A. 100
- B. 48
- C. 98
- D. 95

**79.** Two number pairs follow the same rule:  $4 : 20$  and  $6 : 42$ . Which number goes with 9 ( $9 : ?$ ) in the same way?

- A. 90
- B. 81
- C. 72
- D. 99

**80.** Solve:  $27 + ? = 64$ . What number goes in the blank?

- A. 91
- B. 36
- C. 38
- D. 37

**81.** Solve:  $? - 19 = 36$ . What number goes in the blank?

- A. 17
- B. 55
- C. 54
- D. 56

**82.** Solve:  $7 \times ? = 84$ . What number goes in the blank?

- A. 91
- B. 77
- C. 13
- D. 12

**83.** Solve:  $? \div 9 = 7$ . What number goes in the blank?

- A. 16
- B. 56
- C. 63
- D. 72

**84.** Solve:  $83 - ? = 47$ . What number goes in the blank?

- A. 36
- B. 130
- C. 35
- D. 37

**85.** Each star stands for the same number, and  $\text{star} + \text{star} + \text{star} + \text{star} = 52$ . What is  $\text{star} + 6$ ?

- A. 13
- B. 58
- C. 19
- D. 46

**86.** Solve:  $? + 35 = 22 + 60$ . What number goes in the blank?

- A. 47
- B. 82
- C. 117
- D. 45

**87.** Solve:  $91 \div ? = 13$ . What number goes in the blank?

- A. 104
- B. 78
- C. 8
- D. 7

**88.** Which sign makes this true?  $14 ? 6 = 84$

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

D. divided by

**89.** Solve:  $8 \times ? + 5 = 61$ . What number goes in the blank?

- A. 56
- B. 7
- C. 6
- D. 8

**90.** Solve:  $5 \times ? - 9 = 41$ . What number goes in the blank?

- A. 50
- B. 8
- C. 10
- D. 12

**91.** Each circle stands for the same number, and  $\text{circle} + \text{circle} + 15 = 51$ . What is circle?

- A. 36
- B. 33
- C. 22
- D. 18

**92.** Which sign makes this true?  $88 ? 11 = 8$

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

**93.** Solve:  $90 \div ? - 4 = 11$ . What number goes in the blank?

- A. 15
- B. 7
- C. 6
- D. 10

**94.** Which sign makes this true?  $52 ? 17 = 35$

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

**95.** Each diamond stands for the same number, and  $\text{diamond} + \text{diamond} + \text{diamond} = \text{diamond} + 18$ . What number is diamond?

- A. 18
- B. 6
- C. 12
- D. 9

**96.** Solve:  $(? - 4) \times 6 = 48$ . What number goes in the blank?

- A. 8
- B. 12
- C. 52
- D. 14

**97.** Solve:  $? \times 7 = 6 \times 14$ . What number goes in the blank?

- A. 84
- B. 12
- C. 11
- D. 14

**98.** Solve:  $3 \times ? + 14 = 7 \times 8$ . What number goes in the blank?

- A. 42
- B. 13
- C. 14
- D. 18

**99.** What number comes next? 14, 23, 32, 41, ?

- A. 50
- B. 49
- C. 51
- D. 59

**100.** What number comes next? 98, 90, 82, 74, ?

- A. 65
- B. 67
- C. 58
- D. 66

**101.** What number comes next? 150, 175, 200, 225, ?

- A. 245

- B. 275
- C. 250
- D. 240

**102.** What number comes next? 13, 39, 117, 351, ?

- A. 1053
- B. 702
- C. 1404
- D. 363

**103.** What number comes next? 960, 480, 240, 120, ?

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

**104.** What number comes next? 83, 71, 59, 47, ?

- A. 37
- B. 34
- C. 33
- D. 35

**105.** What number comes next? 1, 5, 25, 125, ?

- A. 500
- B. 250
- C. 625
- D. 130

**106.** What number comes next? 12, 20, 17, 25, 22, ?

- A. 30
- B. 19
- C. 27
- D. 33

**107.** What number comes next? 12, 13, 15, 18, 22, ?

- A. 26
- B. 28
- C. 29
- D. 27

**108.** What number comes next? 5, 50, 8, 45, 11, 40, 14, ?

- A. 17
- B. 35
- C. 37
- D. 30

**109.** What number comes next? 2, 3, 6, 11, 18, ?

- A. 25
- B. 27
- C. 26
- D. 29

**110.** What number comes next? 3, 6, 7, 14, 15, 30, ?

- A. 31
- B. 60
- C. 32
- D. 33

**111.** What number comes next? 5, 11, 23, 47, 95, ?

- A. 190
- B. 192
- C. 193
- D. 191

**112.** What number comes next? 2, 4, 10, 28, 82, ?

- A. 246
- B. 242
- C. 244
- D. 240

**113.** What number comes next? 3, 100, 6, 92, 9, 84, 12, ?

- A. 15
- B. 72
- C. 76
- D. 68

**114.** What number comes next? 3, 12, 27, 48, 75, ?

- A. 100

- B. 108
- C. 105
- D. 102

**115.** What number comes next? 2916, 972, 324, 108, ?

- A. 54
- B. 72
- C. 40
- D. 36

**116.** What number comes next? 5, 15, 13, 39, 37, 111, ?

- A. 109
- B. 333
- C. 113
- D. 108

**117.** What number comes next? 100, 52, 28, 16, ?

- A. 8
- B. 12
- C. 14
- D. 10

**118.** What number comes next? 1, 2, 4, 5, 9, 8, 16, 11, ?

- A. 25
- B. 14
- C. 24
- D. 27

**119.** In a 2 by 2 grid, the top row shows a small gray hexagon, then a large gray hexagon. The bottom row shows a small black pentagon, then a missing figure. Which figure completes the grid?

- A. a small black pentagon
- B. a large gray pentagon
- C. a large black pentagon
- D. a large black hexagon

**120.** In a 2 by 2 grid, the top row shows a white diamond with a line through it, then a white diamond with no line. The bottom row shows a white oval with a line through it, then a missing figure. Which figure completes the grid?

- A. a white oval with a line through it
- B. a white oval with no line
- C. a black oval with no line
- D. a white diamond with no line

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

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

**122.** In a 2 by 2 grid, the top row shows five small white squares, then three small white squares. The bottom row shows seven small gray triangles, then a missing figure. Which figure completes the grid?

- A. seven small gray triangles
- B. five small white triangles

- C. three small gray triangles
- D. five small gray triangles

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

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

**124.** In a 2 by 2 grid, the top row shows a long black arrow pointing up, then a long black arrow pointing right. The bottom row shows a short black arrow pointing up, then a missing figure. Which figure completes the grid?

- A. a short black arrow pointing up
- B. a short black arrow pointing right
- C. a short black arrow pointing left
- D. a long black arrow pointing right

**125.** In a 2 by 2 grid, the top row shows a white triangle with its point up, then the same white triangle with its point down. The bottom row shows a gray half circle with its flat side down, then a missing figure. Which figure completes the grid?

- A. a gray half circle with its flat side down
- B. a black half circle with its flat side up
- C. a gray half circle with its flat side to the left
- D. a gray half circle with its flat side up

**126.** In a 2 by 3 grid, the top row shows a circle with a dot above it, a circle with a dot to its right, and a circle with a dot below it. The bottom row shows a square with a dot above it, a square with a dot to its right, and a missing figure. Which figure completes the grid?

- A. a square with a dot above it
- B. a square with a dot below it
- C. a square with a dot to its left
- D. a circle with a dot below it

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

- A. a black triangle with a white dot inside
- B. a white triangle with a white dot inside
- C. a black triangle with a black dot inside
- D. a black circle with a white dot inside

**128.** In a 2 by 3 grid, the top row shows a white arrow pointing up, a white arrow pointing right, and a white arrow pointing down. The bottom row shows a black arrow pointing up, a black arrow pointing right, and a missing figure. Which figure completes the grid?

- A. a black arrow pointing up
- B. a black arrow pointing left
- C. a black arrow pointing down
- D. a white arrow pointing down

**129.** In a 3 by 3 grid, each column holds one shape and each row holds one count. The top row shows one gray circle, one gray square, and one gray star. The middle row shows two of each. The bottom row shows three gray circles, three gray squares, and a missing figure. Which figure completes the grid?

- A. two gray stars
- B. three gray squares
- C. three gray stars
- D. three white stars

**130.** In a 3 by 3 grid, every figure is white. The top row shows a circle, a square, and a triangle. The middle row shows a triangle, a circle, and a square. The bottom row shows a square, a triangle, and a missing figure. Which figure completes the grid?

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

**131.** In a 3 by 3 grid, the top row shows a white circle, a gray circle, and a black circle. The middle row shows a gray square, a black square, and a white square. The bottom row shows a black triangle, a white triangle, and a missing figure. Which figure completes the grid?

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

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

- A. a white star above a black moon
- B. a black star above a white moon
- C. a white moon above a black star
- D. a white star above a white moon

**133.** In a 3 by 3 grid, the top row shows one dot, two dots, and three dots. The middle row shows three dots, one dot, and four dots. The bottom row shows four dots, three dots, and a missing figure. Which figure completes the grid?

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

**134.** In a 3 by 3 grid, the top row shows a plain circle, a circle with one line, and a circle with one line and one dot. The middle row shows a plain square, a square with one line, and a square with one line and one dot. The bottom row shows a plain triangle, a triangle with one line, and a missing figure. Which figure completes the grid?

- A. a triangle with one dot only
- B. a triangle with two lines
- C. a square with one line and one dot
- D. a triangle with one line and one dot

**135.** In a 2 by 3 grid, the top row shows a white circle in the top left corner of a square frame, then in the top right corner, then in the bottom right corner. The bottom row shows a black triangle in the top left corner of a frame, then in the top right corner, and a missing figure. Which figure completes the grid?

- A. a black triangle in the bottom right corner
- B. a black triangle in the bottom left corner
- C. a black triangle in the top right corner
- D. a white triangle in the bottom right corner

**136.** In a 3 by 3 grid, the top row shows five dots, two dots, and three dots. The middle row shows eight dots, three dots, and five dots. The bottom row shows nine dots, four dots, and a missing figure. Which figure completes the grid?

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

**137.** In a 3 by 3 grid, the top row shows a circle, a square, and a circle inside a square. The middle row shows a triangle, a diamond, and a triangle inside a diamond. The bottom row shows a heart, an oval, and a missing figure. Which figure completes the grid?

- A. an oval inside a heart
- B. a heart beside an oval
- C. a heart inside an oval
- D. a heart with no oval

**138.** In a 3 by 3 grid, the top row shows a white arrow pointing up, a gray arrow pointing right, and a black arrow pointing down. The middle row shows a white arrow pointing right, a gray arrow pointing down, and a black arrow pointing left. The bottom row shows a white arrow pointing down, a gray arrow pointing left, and a missing figure. Which figure completes the grid?

- A. a black arrow pointing up
- B. a black arrow pointing down
- C. a black arrow pointing right
- D. a gray arrow pointing up

**139.** A paper napkin is folded in half once. One hole is punched through the folded napkin, away from the crease. How many holes does the napkin have when it is opened?

- A. one hole
- B. two holes
- C. three holes
- D. four holes

**140.** An index card is folded in half, then folded in half again. One hole is punched through all the layers, away from every fold. How many holes does the card have when it is unfolded?

- A. two holes
- B. three holes

- C. eight holes
- D. four holes

**141.** A sheet of paper is folded in half once. Five holes are punched through the folded paper, and none touches the fold. How many holes does the sheet have when it is unfolded?

- A. five holes
- B. ten holes
- C. eight holes
- D. twelve holes

**142.** A long paper strip is folded like a letter into three equal layers. Two holes are punched through all the layers, away from the folds. How many holes does the strip have when it is unfolded?

- A. two holes
- B. three holes
- C. four holes
- D. six holes

**143.** A square of tissue paper is folded in half. One hole is punched with its centre exactly on the fold. How many holes does the tissue have when it is unfolded?

- A. two holes
- B. three holes
- C. one hole
- D. four holes

**144.** A square sheet of paper is folded in half by bringing its top edge down to its bottom edge. One hole is punched near the bottom left corner of the folded shape. Which choice describes the unfolded sheet?

- A. Two holes, one near each left corner

- B. Two holes, one near each bottom corner
- C. One hole near the bottom left corner
- D. Two holes in the middle of the sheet

**145.** A square sheet of paper is folded in half by bringing its right edge over to its left edge. One hole is punched near the top left corner of the folded shape. Which choice describes the unfolded sheet?

- A. Two holes, one near each left corner
- B. Two holes, one near each top corner
- C. Four holes, one near each corner
- D. One hole near the top left corner

**146.** A sheet of paper is folded in half three times, and the folded paper has eight layers. One hole is punched through every layer, away from the folds. How many holes does the sheet have when it is unfolded?

- A. three holes
- B. six holes
- C. four holes
- D. eight holes

**147.** A square sheet of paper is folded in half by bringing its bottom edge up to its top edge. One hole is punched near the bottom right corner of the folded shape, close to the fold. Which choice describes the unfolded sheet?

- A. Two holes along the bottom edge, left and right of the middle
- B. One hole near the bottom right corner
- C. Two holes along the right edge, above and below the middle
- D. Two holes near the top and bottom right corners

**148.** A square sheet of paper is folded along a diagonal so the top left corner meets the bottom right corner, which makes a triangle. One hole is punched near the triangle's corner where those two corners meet, away from the fold. Which choice describes the unfolded sheet?

- A. Two holes, near the top right and bottom left corners
- B. Two holes, both near the top left corner
- C. One hole near the top left corner
- D. Two holes, near the top left and bottom right corners

**149.** A sheet of paper is folded in half once. Two holes are punched in the folded paper, away from the fold. A third hole is punched with its centre exactly on the fold. How many holes does the sheet have when it is unfolded?

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

**150.** A square sheet of paper is folded in half by bringing its left edge over to its right edge. One hole is punched near the top left corner of the folded shape, close to the fold. Which choice describes the unfolded sheet?

- A. Two holes side by side at the bottom middle
- B. Two holes side by side at the top middle
- C. Two holes spread near the top corners
- D. One hole at the middle of the top

**151.** A square sheet of paper is folded in half by bringing its left edge over to its right edge. Then it is folded in half again by bringing its bottom edge up to its top edge. One hole is punched near the top right corner of the small folded square, away from both folds. Which choice describes the unfolded sheet?

- A. Four holes, one near each corner
- B. Four holes in a row across the top
- C. One hole near the top right corner
- D. Two holes near the right corners

**152.** A square sheet of paper is folded in half, and then folded in half again. Three holes are punched through all the layers, away from the folds. How many holes does the sheet have when it is unfolded?

- A. six holes
- B. nine holes
- C. twelve holes
- D. eight holes

**153.** A square sheet of paper is folded in half twice, so that the two folds cross at the centre of the sheet. One hole is punched with its centre exactly on the corner where the two folds cross. Which choice describes the unfolded sheet?

- A. Two holes at the centre of the sheet
- B. One hole at the centre of the sheet
- C. Four holes near the centre of the sheet
- D. Four holes, one near each corner

**154.** A square sheet of paper is folded in half by bringing its top edge down to its bottom edge. Then it is folded in half again by bringing its right edge over to its left edge. One hole is punched near the top left corner of the small folded square, not touching either fold. Which choice describes the unfolded sheet?

- A. Two pairs of holes at the top and bottom edges
- B. Four holes, one near each corner
- C. Two pairs of holes at the left and right edges
- D. Two single holes at the left and right edges

**155.** A square sheet of paper is folded in half by bringing its left edge over to its right edge. Then it is folded in half again by bringing its bottom edge up to its top edge. One hole is punched near the top left corner of the small folded square, not touching either fold. Which choice describes the unfolded sheet?

- A. Two pairs of holes at the top and bottom edges
- B. Two pairs of holes at the left and right edges
- C. Four holes, one near each corner
- D. Two single holes at the top and bottom edges

**156.** A square sheet of paper is folded in half by bringing its left edge over to its right edge. Then it is folded in half again by bringing its bottom edge up to its top edge. One hole is punched with its centre exactly on the left edge of the small folded square, halfway up. Which choice describes the unfolded sheet?

- A. Four holes on the vertical centre line
- B. Two holes on the horizontal centre line
- C. One hole at the centre of the sheet
- D. Two holes on the vertical centre line

**157.** A square sheet of paper is folded in half by bringing its left edge over to its right edge. Then it is folded in half again by bringing its bottom edge up to its top edge. One hole is punched near the bottom edge of the small folded square, halfway across, away from both folds. Which choice describes the unfolded sheet?

- A. Two pairs of holes, spread top and bottom down the middle width
- B. Two pairs of holes, spread left and right along the middle height
- C. Four holes close together at the centre
- D. Two single holes, one at the middle of each side

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

- A. a white heart
- B. a black heart
- C. a gray heart
- D. a striped heart

**159.** Three figures are shown. The first is a circle with one dot in its middle. The second is a square with one dot in its middle. The third is a hexagon with one dot in its middle. Which figure is most like the first three?

- A. a pentagon with two dots in the middle
- B. a pentagon with no dot
- C. a pentagon with a line through it
- D. a pentagon with one dot in the middle

**160.** Three figures are shown. The first is a tall black triangle. The second is a small white triangle. The third is a tilted gray triangle. Which figure is most like the first three?

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

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

- A. a short wide star lying flat
- B. a tall thin star on its side
- C. a short round star
- D. a tall thin star standing up

**162.** Three figures are shown. The first is an arrow pointing left. The second is a boat with its bow pointing left. The third is a triangle with its tip pointing left. Which figure is most like the first three?

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

**163.** Three figures are shown. The first is two small circles side by side. The second is two small squares side by side. The third is two small stars side by side. Which figure is most like the first three?

- A. three small hearts side by side
- B. two small hearts side by side
- C. two small hearts one above the other
- D. one small heart

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

- A. a star with a hole in the middle
- B. a solid star with no hole
- C. a star with two holes
- D. a star with a notch in its edge

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

- A. a big star containing a small circle
- B. a big star containing a small star
- C. a big star beside a small star

D. a big star with nothing inside

**166.** Three figures are shown. The first is a pentagon. The second is a star with five points. The third is a flower with five petals. Which figure is most like the first three?

- A. a starfish with five arms
- B. a clover with four leaves
- C. a flower with six petals
- D. a cross with four arms

**167.** Three figures are shown. The first is a letter C shape. The second is a curved arc. The third is a zigzag line with free ends. Which figure is most like the first three?

- A. a closed circle
- B. a closed square
- C. a closed triangle
- D. a wavy open line

**168.** Three figures are shown. The first is a black circle at the top of a box. The second is a black square at the top of a box. The third is a black triangle at the top of a box. Which figure is most like the first three?

- A. a black star at the bottom of a box
- B. a white star at the top of a box
- C. a black star at the top of a box
- D. a black star in the middle of a box

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

- A. a star with horizontal stripes

- B. a star with vertical stripes
- C. a star with slanted stripes
- D. a star with dots

**170.** Three figures are shown. The first is a heart. The second is a kite. The third is a tree shape with a straight trunk. Which figure is most like the first three?

- A. a butterfly shape
- B. a lightning bolt
- C. a comma shape
- D. a spiral shape

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

- A. a star with its bottom half black
- B. a star with its left half black
- C. a star with its top half black
- D. a star that is all black

**172.** Three figures are shown. The first is a white circle with a black dot above it. The second is a white square with a black dot above it. The third is a white triangle with a black dot above it. Which figure is most like the first three?

- A. a white star with a black dot below it
- B. a black star with a black dot above it
- C. a white star with a white dot above it
- D. a white star with a black dot above it

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

- A. a big white heart with a small black moon inside
- B. a big black heart with a small white moon inside
- C. a big black heart with a small black moon inside
- D. a big gray heart with a small gray moon inside

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

- A. a hexagon with six dots inside
- B. a hexagon with four dots inside
- C. a hexagon with five dots inside
- D. a hexagon with three dots inside

**175.** Three figures are shown. The first is a circle with exactly half of it shaded. The second is a square with exactly half of it shaded. The third is a hexagon with exactly half of it shaded. Which figure is most like the first three?

- A. an octagon with one quarter shaded
- B. an octagon with three quarters shaded
- C. an octagon with all of it shaded
- D. an octagon with exactly half shaded

**176.** Three figures are shown. The first is a small circle on the left with a large square on the right. The second is a small star on the left with a large heart on the right. The third is a small triangle on the left with a large oval on the right. Which figure is most like the first three?

- A. a small cross on the left with a large moon on the right
- B. a large cross on the left with a small moon on the right
- C. a small cross on the left with a small moon on the right
- D. a small cross above a large moon

## Practice Exam 12: Answer Key and Explanations

- 1. D** — A screwdriver is a tool made to turn a screw, and a hammer is a tool made to drive a nail. Each pair joins a tool with the small metal fastener it works on. A curtain, a ribbon, and a bucket are not fastened by a hammer, so they fail to match how the screwdriver connects to the screw.
- 2. A** — A judge works in a courthouse, and a doctor works in a hospital. Both pairs connect a worker with the building where that job is usually done. A bakery, a museum, and a garage are buildings too, but a doctor does not normally treat patients there, so only hospital repeats the link between worker and workplace.
- 3. C** — A roof covers the top of a house, and a lid covers the top of a jar. Both pairs name a covering and the object it closes. A table, a shoe, and a river do not have lids, so they break the pattern. Jar is the only choice that a lid is made to close.
- 4. B** — A saw is a tool that cuts wood, and scissors are a tool that cuts paper. Each pair joins a cutting tool with something it can cut. Nobody can cut water, smoke, or sand with scissors, because those things flow, drift, or pour away. Paper is the only choice that scissors can actually slice, so it completes the pattern.
- 5. A** — A brick is one small piece that builders stack to make a wall, and a page is one small piece that is bound together to make a book. Both pairs join a part with the whole it builds. A pencil, glue, and a backpack are things used with pages, but none is made up of pages like a book.
- 6. B** — A garage is a building made to store cars, and a library is a building made to store books for people to read or borrow. Each pair names a building and the things kept inside it. Soup, songs, and fish are not usually stored on library shelves, so only books keeps the same link between place and contents.
- 7. C** — A needle is a tool used to sew cloth, and a pencil is a tool used to write words. Each pair joins a small hand tool with its main job. Nobody uses a pencil to cut, dig, or bake, because those jobs need a blade, a shovel, or an oven. Write is the action that a pencil is made for.
- 8. D** — A shovel is a tool used to dig soil, and a broom is a tool used to sweep a floor. Each pair joins a tool with the action it performs. Painting needs a brush, measuring needs a ruler or tape, and whistling needs no broom at all. Sweep is the only action a broom is built to do.
- 9. B** — A bridge lets travellers cross over a river, and a tunnel lets travellers pass through a mountain. Both pairs join a passage with the big obstacle it helps people get past. A tunnel cannot be dug through a cloud, a sidewalk, or a kitchen in any useful way, so mountain is the only choice that matches the pattern.
- 10. A** — A skyscraper is a building known for being very tall, and a cottage is a building known for being small and cozy. Each pair joins a building with the size word that best describes it. Loud, cold, and wet describe sound, temperature, and weather, not how big a building is, so only small keeps the same kind of link.

**11. C** — A ruler is a tool for measuring length, and a scale is a tool for measuring weight. Each pair joins a measuring tool with the quantity it measures. A scale cannot tell the color of an object, the loudness of a sound, or how fast something moves. Weight is the only quantity a scale reports, so it fits.

**12. D** — A mason is a builder who works mainly with brick and stone, and a carpenter is a builder who works mainly with wood. Both pairs join a tradesperson with the main material of the trade. Glass, cloth, and paper are materials used by other workers, such as window makers and tailors, so wood is the one that matches.

**13. C** — A pattern is a guide that shows how to make a dress, and a blueprint is a guide that shows how to make a building. Each pair joins a plan with the thing it produces. A hammer, a ladder, and paint are things builders use, but they are not what a blueprint describes, so building is the answer.

**14. D** — A compass is a tool that shows direction, such as north or east, and a thermometer is a tool that shows temperature. Each pair joins an instrument with the thing it reports. Height needs a ruler, weight needs a scale, and color needs eyes, so none of those is measured by a thermometer. Temperature is correct.

**15. B** — A bulldozer is a heavy machine that pushes dirt and rubble with its wide blade, and a crane is a tall machine that lifts heavy loads high into the air. Each pair joins a machine with its main motion. A crane does not paint, sweep, or sew, so lift is the only match.

**16. A** — A tower is a tall part of a castle, and a mast is a tall pole that is part of a ship. Both pairs join a part with the whole that contains it. A cave, a kitchen, and a bicycle do not have masts, so none finish the pattern. Ship is the only choice.

**17. D** — A faucet is a control that lets water flow or stops it, and a switch is a control that turns a light on or off. Each pair joins a control with what it controls. Soap, a pipe, and a roof are not turned on by a switch, so they do not match. Light is the item a switch controls.

**18. A** — A plumber installs and repairs pipes, and an electrician installs and repairs wires. Each pair joins a trade with the thing that tradesperson mainly works on. A brick belongs to a mason, glue to a crafter, and a bucket to a cleaner, so none of those suits an electrician. Wire is the correct match.

**19. B** — A foundation is the strong base under a building that holds it up, and roots are the base under a tree that hold it in the ground. Both pairs join a hidden support with the large thing it supports. A leaf, a bird, and fruit do not have roots of their own, so tree is correct.

**20. C** — A scaffold is a platform where a builder stands to work, and a stage is a platform where an actor stands to perform. Each pair joins a raised platform with the person who works on it. A ticket, a seat, and popcorn belong to the audience, not to the performers, so actor is the best choice.

**21. A** — A hard hat is the helmet that workers wear to protect their heads from falling objects at a building site. The sentence says the item protects heads, so mittens, boots, and scarves fail, because they cover hands, feet, and necks. Only hats makes sense with the word hard and with the job of guarding a head.

**22. B** — Measuring a board needs a tool that shows exact lengths, and a ruler has marks for that. A spoon is for eating, a kettle is for heating water, and a pillow is for sleeping, so none of them can measure anything. Because the sentence says he measured before cutting, ruler is the only word that fits.

**23. D** — Only a building could have fifty floors, and a very tall one in a city is called a skyscraper. A puddle is a small pool of water, a sandwich is food, and a whisper is a soft sound, so none of them can have floors. Skyscraper is the only word that matches the clue about floors.

**24. C** — A handle is turned to unlatch a door so that it can swing open. A door does not dance, bloom, or melt, because those words describe people, flowers, and ice. The clue about turning the handle points to opening, so open is the one word that makes a sensible and true sentence.

**25. A** — A sheet laid on the floor keeps paint drips from landing on it, which means it protects the floor. Invite, borrow, and forget do not describe what a sheet does for a floor. Protect also fits the word before painting, because Mia was thinking ahead to prevent mess. Only protect completes the sentence sensibly.

**26. C** — A level is a tool that shows whether a surface is flat, so a builder uses it to check that a shelf does not tilt. A shelf cannot be dizzy, hungry, or loud, because those words describe feelings or sounds. The clue about the tool points straight to the word flat.

**27. B** — A barn with creaking walls and a leaning roof is unsteady and close to falling down, which is what the word wobbly describes. Fresh and tasty describe food, and speedy describes how fast something moves, so none of them can explain a leaning roof. Only wobbly matches the damage described in the sentence.

**28. D** — Sanding rubs away rough spots, and a board with no rough spots cannot give a splinter. So the carpenter sanded until it was smooth. A rough board would cause splinters. A crooked board bends and a heavy board weighs a lot, but neither word explains why splinters would stop, so smooth is correct.

**29. B** — A library lends books to people for a short time, and the word for taking something to return later is borrow. People do not bake, paint, or throw library books, because those actions would ruin them. The clue about keeping them for two weeks also points to borrowing, so borrow is the only sensible word.

**30. C** — When a bridge is closed, drivers must follow another way to reach their destination, and that way is called a route. A flavor is a taste, a song is music, and a season is a part of the year, so none of them can be driven along. Route is the only word that fits.

**31. A** — A ladder helps firefighters get up to a high window, so they can reach the tenth floor. Nobody whispers, drinks, or tickles a floor, because those words do not describe getting to a place. The sentence is about climbing to a height, which makes reach the one word that fits.

**32. D** — Thick, high walls are made to guard a town, which is what defend means. Tease, borrow, and invite do not make sense with attackers, because walls do not joke with, lend things to, or welcome them. The words thick and high give the clue that the walls were built for protection, so defend is correct.

**33. C** — A saw cuts with a row of sharp points called teeth, and when they are dull the saw struggles to cut. Roots belong to plants, petals belong to flowers, and windows belong to buildings, so none of them are part of a saw. Teeth is the only word that completes the sentence correctly.

**34. B** — Finishing a school by a deadline needs steady, hard effort, and diligently means working carefully and without giving up. Lazily and carelessly would make the deadline hard to meet, and rarely would mean they hardly worked at all. The clue that they worked all summer to finish on time points only to diligently.

**35. A** — An architect designs a house by drawing a plan, and workers then follow that plan to build it. The other pairs do not fit: a singer, a teacher, and a chef do not draw house plans, and farmers, dancers, and pilots do not build houses. Only the first pair makes a sensible order of events.

**36. D** — A tiny shed with space for one person is tightly packed, which is what cramped means. Spacious, enormous, and roomy all describe a lot of space, which would be the opposite of the clue. Because the sentence says only one person could fit, cramped is the one word that works.

**37. C** — A wide variety means many different kinds, and the sentence lists hammers and wrenches as examples of different tools. Silence is quietness, weather is conditions outdoors, and a dream is something imagined, so none of them can describe a store's stock. Variety is the only word that completes the phrase a wide \_\_\_\_ of tools.

**38. D** — To endure is to last through hard conditions, and a temple that stands for hundreds of years through storms has endured. A building cannot wander, whisper, or borrow, because those actions belong to people and animals. The phrase through storms is the clue that the temple lasted, so endured is correct.

**39. A** — A weak bridge that carries heavy trucks could fall down, and the word for falling down suddenly is collapse. Blossom is what flowers do, giggle is what people do, and sparkle is what shiny things do. None of those would explain why engineers test bridges so carefully, so collapse is the only word that fits.

**40. B** — Thick logs and a strong roof describe a building that is solid and hard to damage, which sturdy means. Fragile, flimsy, and delicate all describe things that break easily, which would be the opposite of what the sentence says. The details about the logs and the roof point clearly to sturdy.

**41. A** — Hammer, saw, and wrench are all tools that people hold to do building and repair jobs. A drill is also a tool for making holes, so it belongs with them. A brick, a window, and a roof are materials or parts of a building, not tools, so none of them join the group.

**42. D** — House, cabin, and cottage are all places where people live. A bungalow is a small one-story house that people live in, so it belongs with them. A hammer and a paintbrush are tools that builders and painters hold, and a garden is a place where plants grow, so none of those three are homes.

**43. B** — Door, window, and wall are all parts of a building. A roof is another part of a building, so it belongs. A pencil is a writing tool, a bucket is a container, and a nurse is a person who cares for patients, so none of those are parts of a building.

**44. C** — School, library, and museum are all public buildings where people go to learn or enjoy something. A theatre is another public building, so it belongs. A ruler is a tool, a carpenter is a worker, and a painting is an object hung inside a building, so none of them are buildings themselves.

**45. B** — Pencil, pen, and marker are all tools that make marks when people write or draw. A crayon also makes colored marks, so it belongs. Paper and a notebook are things that receive the marks, and a backpack is a bag for carrying supplies, so none of those three are tools for making marks.

**46. C** — Kitchen, bedroom, and bathroom are all rooms inside a house. A basement is another room, found below the ground floor, so it belongs. A sidewalk and a mailbox are outside the house, and a carpet is something that covers a floor, so none of those three are rooms inside a house.

**47. D** — Bricks, wood, and concrete are all materials that builders use to make buildings. Steel is another strong building material, so it belongs. A builder is a person, a blueprint is a plan, and a tower is something that gets built, so none of those three words name a material that goes into a wall.

**48. A** — Shovel, rake, and hoe are all hand tools that gardeners use to dig, smooth, and loosen the ground. A trowel is a small hand tool for digging, so it belongs. Flowers, soil, and seeds are things found in a garden, not tools that people hold, so none of those three match the group.

**49. C** — Tape measure, ruler, and yardstick are all tools made to measure how long something is. A meter stick also measures length, marked in centimeters, so it belongs. A pencil makes marks, scissors cut paper, and a stapler joins sheets together, so none of those three can be used to measure length.

**50. A** — Tower, skyscraper, and lighthouse are all very tall structures that rise high above the ground. A steeple is a tall pointed tower on a church, so it belongs. A basement is underground, a puddle is flat water, and a driveway is a flat path, so none of those three are tall.

**51. D** — Cathedral, mosque, and temple are all buildings where people gather to worship. A chapel is a small building for worship as well, so it belongs. A factory makes goods, an airport serves planes, and a bakery makes bread, so none of those three are places where people gather in order to worship.

**52. B** — Saw, axe, and chainsaw are all tools that cut through wood. A hatchet is a small axe that also cuts wood, so it belongs. A hammer pounds nails, a ladder is climbed to reach high places, and a bucket holds water or tools, so none of those three are made for cutting.

**53. A** — Bridge, tunnel, and highway are all structures that let vehicles and people travel from one place to another. A railway carries trains along a route, so it belongs. A kitchen, a library, and a chimney all stay in one place, and none of them is a route that people or vehicles travel along.

**54. C** — Factory, mill, and workshop are all buildings where goods are made. A bakery is a building where bread and cakes are baked and made, so it belongs. A museum displays objects, an airport handles flights, and a stadium hosts games, so none of those three are places where goods are made.

**55. B** — Apartment, condo, and townhouse are all kinds of homes in which people live. A duplex is a house split into two homes, so it belongs. An elevator is a machine, a landlord is a person, and rent is a payment, so none of those three are types of home that people can live in.

**56. D** — Stairs, elevator, and escalator are all ways to move from one floor of a building to another. A ramp also carries people between levels, so it belongs. A chimney carries smoke, a carpet covers a floor, and a doorbell makes a sound, so none of those three move people between floors.

**57. B** — Barn, shed, and greenhouse are all farm buildings that store things or protect plants. A silo is a tall farm structure that stores grain, so it belongs. A tractor is a machine, a fence is a barrier, and hay is a food for animals, so none of those three are buildings.

**58. C** — Nails, screws, and bolts are all small metal pieces that hold materials together. Tacks are small pointed fasteners too, so they belong. A hammer and a drill are tools that install fasteners, and a toolbox only holds them, so none of those three are the small fasteners that hold two pieces of material together.

**59. D** — Blueprint, floor plan, and sketch are all drawings on paper that show how something looks or is laid out. A drawing is the broader word that fits them all, so it belongs. Brick, a helmet, and lumber are physical objects, not drawings, so none of those three match the group.

**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 15 gives 20. The choice 18 adds only 3, the choice 19 adds 4, and 75 multiplies by 5, so none of them follow the rule.

**61. D** — In  $6 : 24$  and  $9 : 36$ , the second number is 4 times the first, since 6 times 4 is 24 and 9 times 4 is 36. Multiplying 7 by 4 gives 28. The choice 11 adds 4, the choice 21 multiplies by 3, and 42 multiplies by 6, so none of them keep the rule.

**62. A** — In  $17 : 11$  and  $25 : 19$ , the second number is 6 less than the first, since 17 minus 6 is 11 and 25 minus 6 is 19. Subtracting 6 from 31 gives 25. The choice 37 adds 6 instead. The choice 23 subtracts 8, and 28 subtracts 3, so neither one follows the rule.

**63. B** — In  $40 : 5$  and  $56 : 7$ , the second number is the first divided by 8, since 40 divided by 8 is 5 and 56 divided by 8 is 7. Dividing 72 by 8 gives 9. The choice 64 subtracts 8, 576 multiplies by 8, and 10 does not fit either pair.

**64. C** — 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 11 gives 33. The choice 22 only doubles it, the choice 21 adds 10, and the choice 36 multiplies by more than 3, so none of them follow the rule.

**65. D** — In  $13 : 26$  and  $21 : 42$ , the second number is double the first, since 13 plus 13 is 26 and 21 plus 21 is 42. Doubling 34 gives 68. The choice 47 adds 13 and the choice 44 adds 10, which fit neither pair. The choice 102 triples the number, so it is too large.

**66. B** — In  $28 : 40$  and  $35 : 47$ , the second number is 12 more than the first, since 28 plus 12 is 40 and 35 plus 12 is 47. Adding 12 to 52 gives 64. The choice 59 adds 7, the choice 62 adds 10, and the choice 80 adds 28, so each one breaks the rule.

**67. A** — In  $21 : 7$  and  $36 : 12$ , the second number is one third of the first, since 21 divided by 3 is 7 and 36 divided by 3 is 12. Dividing 54 by 3 gives 18. The choice 33 subtracts 21, the choice 162 multiplies by 3, and the choice 51 subtracts only 3, so none fit.

**68. C** — In  $18 : 7$  and  $30 : 19$ , the second number is 11 less than the first, since  $18$  minus  $11$  is  $7$  and  $30$  minus  $11$  is  $19$ . Subtracting  $11$  from  $44$  gives  $33$ . The choice  $22$  halves the number,  $55$  adds  $11$ , and  $26$  subtracts  $18$ , so none of them follow the rule shown by both pairs.

**69. A** — In  $2 : 14$  and  $5 : 35$ , the second number is 7 times the first, since  $2$  times  $7$  is  $14$  and  $5$  times  $7$  is  $35$ . Multiplying  $9$  by  $7$  gives  $63$ . The choice  $16$  adds  $7$ , the choice  $54$  multiplies by  $6$ , and the choice  $72$  multiplies by  $8$ , so each one breaks the rule.

**70. D** — In  $50 : 41$  and  $38 : 29$ , the second number is 9 less than the first, since  $50$  minus  $9$  is  $41$  and  $38$  minus  $9$  is  $29$ . Subtracting  $9$  from  $27$  gives  $18$ . The choice  $36$  adds  $9$  instead. The choices  $17$  and  $19$  are each one away from the answer, which is a counting slip.

**71. B** — In  $9 : 81$  and  $4 : 16$ , the second number is the first multiplied by itself, since  $9$  times  $9$  is  $81$  and  $4$  times  $4$  is  $16$ . Multiplying  $7$  by itself gives  $49$ . The choice  $14$  doubles  $7$ , the choice  $63$  uses a multiplier of  $9$ , and the choice  $21$  triples  $7$ , so none of them fit.

**72. C** — The second number in each pair is the number that multiplies by itself to make the first, since  $5$  times  $5$  is  $25$  and  $12$  times  $12$  is  $144$ . For  $81$ ,  $9$  times  $9$  is  $81$ , so the answer is  $9$ . The choice  $8$  is too small. The choices  $72$  and  $27$  are not square roots of  $81$ .

**73. D** — The rule has two steps: multiply by  $3$ , then add  $2$ . Check:  $6$  times  $3$  is  $18$ , plus  $2$  is  $20$ , and  $9$  times  $3$  is  $27$ , plus  $2$  is  $29$ . For  $12$ ,  $36$  plus  $2$  is  $38$ . The choice  $36$  forgets to add  $2$ . The choice  $14$  only adds  $2$ , and  $24$  doubles  $12$ , so neither fits.

**74. C** — The rule has two steps: halve the number, then add  $2$ . Check: half of  $10$  is  $5$ , plus  $2$  is  $7$ , and half of  $16$  is  $8$ , plus  $2$  is  $10$ . For  $30$ , half is  $15$ , plus  $2$  is  $17$ . The choice  $15$  forgets to add  $2$ . The choices  $20$  and  $21$  subtract and add the wrong amounts.

**75. B** — The rule has two steps: multiply by  $5$ , then add  $2$ . Check:  $3$  times  $5$  is  $15$ , plus  $2$  is  $17$ , and  $5$  times  $5$  is  $25$ , plus  $2$  is  $27$ . For  $8$ ,  $40$  plus  $2$  is  $42$ . The choice  $40$  forgets to add  $2$ , and  $45$  adds  $5$  instead of  $2$ . The choice  $36$  does not fit either pair.

**76. A** — The rule has two steps: subtract  $1$ , then divide by  $2$ . Check:  $7$  minus  $1$  is  $6$ , half is  $3$ , and  $15$  minus  $1$  is  $14$ , half is  $7$ . For  $23$ ,  $22$  halved is  $11$ . The choice  $12$  rounds half of  $23$  up. The choice  $15$  subtracts  $8$ , and  $13$  does not fit either pair.

**77. B** — The rule has two steps: multiply by  $4$ , then subtract  $1$ . Check:  $8$  times  $4$  is  $32$ , minus  $1$  is  $31$ , and  $11$  times  $4$  is  $44$ , minus  $1$  is  $43$ . For  $14$ ,  $56$  minus  $1$  is  $55$ . The choice  $56$  forgets to subtract  $1$ . The choice  $42$  triples  $14$ , and  $53$  subtracts too much.

**78. C** — The rule has two steps: double the number, then subtract  $2$ . Check:  $20$  doubled is  $40$ , minus  $2$  is  $38$ , and  $35$  doubled is  $70$ , minus  $2$  is  $68$ . For  $50$ ,  $100$  minus  $2$  is  $98$ . The choice  $100$  forgets to subtract. The choice  $48$  subtracts  $2$  without doubling, and  $95$  does not fit either pair.

**79. A** — The second number is the first multiplied by the next counting number:  $4$  times  $5$  is  $20$ , and  $6$  times  $7$  is  $42$ . For  $9$ , the next number is  $10$ , and  $9$  times  $10$  is  $90$ . The choices  $81$ ,  $72$ , and  $99$  use the wrong partners  $9$ ,  $8$ , and  $11$ , so none of them fit.

**80. D** — To find the missing number, subtract: 64 minus 27 equals 37, and 27 plus 37 checks back to 64. The choice 91 comes from adding 27 and 64 instead of subtracting. The choices 36 and 38 are each one away from the true answer, a common slip, and neither one makes the sum equal 64.

**81. B** — The missing number is the one that leaves 36 after 19 is taken away, so add: 36 plus 19 equals 55, and 55 minus 19 checks back to 36. The choice 17 subtracts 19 from 36 instead of adding. The choices 54 and 56 are off by one, so neither gives 36.

**82. D** — To find the missing factor, divide: 84 divided by 7 equals 12, and 7 times 12 checks back to 84. The choice 91 adds 7 to 84 instead of dividing. The choice 77 subtracts 7. The choice 13 is one too many, since 7 times 13 is 91, which is not 84.

**83. C** — The missing number is the one that gives 7 when split into groups of 9, so multiply: 7 times 9 equals 63, and 63 divided by 9 checks back to 7. The choice 16 adds 9 and 7. The choices 56 and 72 are the nearby multiples 7 times 8 and 8 times 9, which do not work.

**84. A** — To find the number taken away, subtract the answer from the start: 83 minus 47 equals 36, and 83 minus 36 checks back to 47. The choice 130 adds 83 and 47 instead. The choices 35 and 37 are each one away from the true answer, so neither one leaves 47 after subtracting.

**85. C** — Four equal stars make 52, so one star is 52 divided by 4, which is 13. The question asks for star plus 6, so the answer is 13 plus 6, which is 19. The choice 13 stops before adding 6. The choice 58 adds 6 to the total of 52, and 46 subtracts 6 from it.

**86. A** — First work out the right side: 22 plus 60 equals 82. Then find what added to 35 gives 82, which is 82 minus 35, or 47. The choice 82 forgets to subtract 35. The choice 117 adds all three numbers together, and 45 is a close guess that makes the left side 80 instead of 82.

**87. D** — To find the divisor, divide the start by the answer: 91 divided by 13 equals 7, and 91 divided by 7 checks back to 13. The choice 104 adds 91 and 13 together, and 78 subtracts them. The choice 8 is one too big, since 91 divided by 8 does not give a whole number.

**88. B** — Try each sign. Fourteen times 6 equals 84, so times works. Fourteen plus 6 is only 20, and 14 minus 6 is only 8. Fourteen divided by 6 is a little more than 2, far from 84. Only multiplication makes the number grow all the way to 84, so times is the sign that makes the equation true.

**89. B** — Work backward. Take away the 5 first: 61 minus 5 equals 56. Then divide by 8: 56 divided by 8 equals 7. Check: 8 times 7 is 56, and 56 plus 5 is 61. The choice 56 stops after the first step. The choices 6 and 8 give totals of 53 and 69, so neither works.

**90. C** — Work backward. Add the 9 first: 41 plus 9 equals 50. Then divide by 5: 50 divided by 5 equals 10. Check: 5 times 10 is 50, and 50 minus 9 is 41. The choice 50 stops after the first step. The choices 8 and 12 give totals of 31 and 51, so neither works.

**91. D** — Two circles plus 15 make 51, so the two circles together equal 51 minus 15, which is 36. One circle is half of that, 18. The choice 36 is the two circles together, not one. The choice 33 subtracts 18 from 51, and 22 does not fit, since 22 plus 22 plus 15 is 59.

**92. A** — Try each sign. Eighty-eight divided by 11 equals 8, so divided by works. Eighty-eight plus 11 is 99, and 88 minus 11 is 77, both much larger than 8. Eighty-eight times 11 is 968, which is far too large. Only division shrinks 88 down to 8, so divided by makes the equation true.

**93. C** — Work backward. Add the 4 first: 11 plus 4 equals 15, so 90 divided by the blank must be 15. Then 90 divided by 6 gives 15. Check: 15 minus 4 is 11. The choice 15 stops after the first step. The choices 7 and 10 give 90 divided by 7 and 90 divided by 10, which do not work.

**94. A** — Try each sign. Fifty-two minus 17 equals 35, so minus works. Fifty-two plus 17 is 69, which is too large. Fifty-two times 17 is 884, which is far too large. Fifty-two divided by 17 is a little more than 3, which is far too small. Only subtraction gives 35, so minus is correct.

**95. D** — Taking one diamond from both sides leaves diamond + diamond = 18, so each diamond is half of 18, which is 9. Check: three 9s make 27, and 9 plus 18 is also 27. The choice 18 is the total, not one diamond. The choices 6 and 12 give sides that do not match.

**96. B** — Work backward. Divide by 6 first: 48 divided by 6 equals 8. Then add the 4: 8 plus 4 equals 12. Check: 12 minus 4 is 8, and 8 times 6 is 48. The choice 8 stops after the first step. The choice 52 adds 4 to 48, and 14 would make the answer 60.

**97. B** — First work out the right side: 6 times 14 equals 84. Then ask which number times 7 equals 84, which is 84 divided by 7, or 12. The choice 84 forgets the last step. The choice 11 gives 77 on the left, and 14 gives 98, so neither matches 84.

**98. C** — First work out the right side: 7 times 8 equals 56. Take away the 14 to get 42, then divide by 3 to get 14. Check: 3 times 14 is 42, and 42 plus 14 is 56. The choice 42 stops one step early. The choices 13 and 18 give totals of 53 and 68.

**99. A** — The numbers go up by 9 each time, since 14 plus 9 is 23, 23 plus 9 is 32, and 32 plus 9 is 41. Adding 9 to 41 gives 50. The choice 49 adds only 8, the choice 51 adds 10, and the choice 59 adds 18, so none of them keep the same step of 9.

**100. D** — The numbers go down by 8 each time, since 98 minus 8 is 90, 90 minus 8 is 82, and 82 minus 8 is 74. Subtracting 8 from 74 gives 66. The choice 65 subtracts 9, the choice 67 subtracts only 7, and the choice 58 subtracts 16, so none of them follow the step of 8.

**101. C** — The numbers go up by 25 each time, since 150 plus 25 is 175, 175 plus 25 is 200, and 200 plus 25 is 225. Adding 25 to 225 gives 250. The choice 245 adds 20, the choice 240 adds 15, and the choice 275 adds 50, so none of them keep the step of 25.

**102. A** — Each number is 3 times the one before it, since 13 times 3 is 39, 39 times 3 is 117, and 117 times 3 is 351. Multiplying 351 by 3 gives 1053. The choice 702 only doubles 351, the choice 1404 multiplies by 4, and the choice 363 adds 12, so none follow the rule of multiplying by 3.

**103. B** — Each number is half of the one before it, since 960 divided by 2 is 480, 480 divided by 2 is 240, and 240 divided by 2 is 120. Half of 120 is 60. The choice 30 divides by 4. The choices 90 and 40 subtract 30 and 80, so they follow a step that the numbers never showed.

**104. D** — The numbers go down by 12 each time, since 83 minus 12 is 71, 71 minus 12 is 59, and 59 minus 12 is 47. Subtracting 12 from 47 gives 35. The choice 37 subtracts only 10, the choice 34 subtracts 13, and the choice 33 subtracts 14, so none of them keep the step of 12.

**105. C** — Each number is 5 times the one before it, since 1 times 5 is 5, 5 times 5 is 25, and 25 times 5 is 125. Multiplying 125 by 5 gives 625. The choice 500 multiplies by 4, the choice 250 only doubles, and the choice 130 adds 5, so none follow the rule of multiplying by 5.

**106. A** — The pattern alternates: plus 8, then minus 3. Starting at 12, we get 20, then 17, then 25, then 22. The last step was minus 3, so the next step is plus 8, and 22 plus 8 is 30. The choice 19 subtracts 3 again. The choices 27 and 33 add 5 and 11, so neither fits.

**107. D** — The gaps grow by 1 each time: plus 1, plus 2, plus 3, plus 4. The next gap is plus 5, and 22 plus 5 is 27. The choice 26 uses a gap of 4 again, so it repeats the step instead of growing it. The choices 28 and 29 use gaps of 6 and 7, which are too big.

**108. B** — Two patterns are mixed together. The numbers in the odd places go up by 3: 5, 8, 11, 14. The others go down by 5: 50, 45, 40, so the next is 35. The choice 17 continues the wrong pattern, since it would be 14 plus 3. The choices 37 and 30 use steps of 3 and 10.

**109. B** — The gaps are plus 1, plus 3, plus 5, plus 7, so the gap grows by 2 each time. The next gap is plus 9, and 18 plus 9 is 27. The choice 25 adds 7 again, the choice 26 adds 8, and the choice 29 adds 11, so none of them follow the growing gap.

**110. A** — The pattern alternates: times 2, then plus 1. From 3 comes 6, then 7, then 14, then 15, then 30. The last step was times 2, so the next step is plus 1, and 30 plus 1 is 31. The choice 60 doubles again. The choices 32 and 33 add 2 and 3, so they do not fit the pattern.

**111. D** — Each number is double the one before it plus 1: 5 times 2 plus 1 is 11, 11 times 2 plus 1 is 23, and 23 times 2 plus 1 is 47. So 95 times 2 plus 1 is 191. The choice 190 forgets the extra 1. The choice 192 adds 2, and 193 adds 3, so neither fits.

**112. C** — Each number is triple the one before it, minus 2: 2 times 3 minus 2 is 4, 4 times 3 minus 2 is 10, and 10 times 3 minus 2 is 28. So 82 times 3 minus 2 is 244. The choice 246 forgets to subtract 2. The choices 242 and 240 subtract too much.

**113. C** — Two patterns are mixed together. The numbers in the odd places go up by 3: 3, 6, 9, 12. The others go down by 8: 100, 92, 84, so the next is 76. The choice 15 continues the wrong pattern. The choices 72 and 68 take steps of 12 and 16 from the wrong numbers.

**114. B** — The gaps are 9, 15, 21, 27, so each gap is 6 more than the one before. The next gap is 33, and 75 plus 33 is 108. The choice 100 uses a gap of 25, the choice 105 uses a gap of 30, and the choice 102 uses a gap of 27, which just repeats the last gap.

**115. D** — Each number is one third of the one before it, since 2916 divided by 3 is 972, 972 divided by 3 is 324, and 324 divided by 3 is 108. One third of 108 is 36. The choice 54 halves 108, and the choice 72 subtracts 36. The choice 40 does not match the rule of dividing by 3.

**116. A** — The pattern alternates: times 3, then minus 2. From 5 comes 15, then 13, then 39, then 37, then 111. The last step was times 3, so the next step is minus 2, and 111 minus 2 is 109. The choice 333 triples again. The choices 113 and 108 add 2 and subtract 3, so they do not fit.

**117. D** — Each number is half of the one before it plus 2: half of 100 is 50, plus 2 is 52, and half of 52 is 26, plus 2 is 28. So half of 16 is 8, plus 2 is 10. The choice 8 forgets the plus 2. The choices 12 and 14 add too much.

**118. A** — Two patterns are mixed together. The numbers in the odd places are square numbers: 1, 4, 9, 16, and the next square is 25. The others go up by 3: 2, 5, 8, 11. The choice 14 continues the wrong pattern, since it would be 11 plus 3. The choices 24 and 27 are not square numbers.

**119. C** — In the top row, the hexagon stays gray and keeps its shape, but it grows from small to large. Applying the same change to the small black pentagon gives a large black pentagon. The small pentagon shows no change. The large gray pentagon changes the shade, and the large black hexagon changes the shape.

**120. B** — Across the top row, the line disappears while the diamond keeps its shape and shade. The oval should lose its line in the same way, giving a white oval with no line. Keeping the line shows no change. The black oval changes the shade, and the white diamond changes the shape instead of the line.

**121. A** — In the top row, the shade gets darker from white to gray to black while the shape stays a square. The bottom row has moons, so the last moon should be black. A white moon or a gray moon repeats a shade already used in that row. A black square gets the right shade but the wrong shape.

**122. D** — Across the top row, the count drops by two, from five squares to three, while shape and shade stay the same. Seven gray triangles minus two leaves five gray triangles. Seven triangles shows no change. Five white triangles changes the shade, and three gray triangles takes away four instead of two.

**123. C** — In the top row, the triangle changes in two ways: it grows from small to large and turns from white to black. The heart must change in both ways too, so it becomes a large black heart. A large white heart changes only the size, a small black heart only the shade, and a large black circle the shape.

**124. B** — Across the top row, the arrow turns a quarter turn so that it points right instead of up, and its length and shade stay the same. The short arrow must also turn to point right. Pointing up shows no turn, and pointing left turns the wrong way. The long arrow pointing right changes the size.

**125. D** — In the top row, the triangle is flipped upside down while its shade stays white. The half circle should be flipped in the same way, so its flat side faces up. A flat side facing down shows no change. The black half circle changes the shade, and a flat side to the left is a quarter turn, not a flip.

**126. B** — In the top row, the dot moves clockwise around the shape: above, then right, then below. The square follows the same path, so its dot ends up below it. A dot above would send the dot back to the start. A dot on the left skips a step, and a circle with a dot below changes the shape.

**127. A** — In the top row, the shade of the outer shape and the shade of the dot swap places. Doing the same to the triangle gives a black triangle with a white dot inside. The white dot on a white triangle changes only the dot. A black dot on a black triangle would be invisible. The circle changes the shape.

**128. C** — In the top row, the arrow turns a quarter turn clockwise each time: up, right, then down. The black arrow follows the same turns, so the last one points down. Pointing up goes back to the start, and pointing left turns one step too far. A white arrow pointing down has the right direction but the wrong shade.

**129. C** — Shapes stay in their columns, and counts grow by row: one, two, three. The right column holds stars, and the bottom row holds three of each shape, so the missing figure is three gray stars. Two stars gives the middle row count. Three squares uses the middle column shape, and three white stars changes the shade.

**130. D** — Each row and each column must hold one circle, one square, and one triangle. The bottom row already has a square and a triangle, so a circle is needed. The right column has a triangle and a square, which also needs a circle. A square or a triangle would repeat a shape, and a black circle changes the shade.

**131. B** — Each row contains all three shades, and each shade moves one place to the left in the next row. The bottom row already has black and white, so gray is missing. A black triangle or a white triangle repeats a shade in that row. A gray square has the correct shade but changes the shape of the bottom row.

**132. A** — In the top row, the two shades swap while the shapes stay in their places: the circle stays on top and the square stays below. Applying that to the star and moon gives a white star above a black moon. No swap shows no change. Swapping the positions changes the order, and two white shapes change only one shade.

**133. B** — In each row, the first two counts add up to the last: one plus two is three, and three plus one is four. In the bottom row, four plus three is seven. One dot subtracts instead of adds, five dots is a slip in adding, and twelve dots multiplies instead of adding.

**134. D** — In every row, the first figure is plain, the second adds one line, and the third adds one dot on top of that line. The triangle must follow, so it gets one line and one dot. A dot without the line skips a step. Two lines add the wrong mark, and a square changes the shape of the row.

**135. A** — In the top row, the shape moves clockwise around the frame from corner to corner: top left, top right, then bottom right. The triangle moves the same way, so the next corner is the bottom right. The bottom left corner would skip a corner, and the top right repeats one. A white triangle changes the shade.

**136. C** — In every row, the third count is the first count minus the second: five minus two is three, and eight minus three is five. In the bottom row, nine minus four is five dots. Thirteen dots adds the numbers instead. Four dots just repeats the middle figure, and six dots comes from a slip in subtraction.

**137. C** — In each row, the third figure combines the first two by placing the first shape inside the second. So the heart must go inside the oval. An oval inside a heart reverses the order. A heart beside an oval puts the shapes side by side, and a lone heart removes the second shape completely.

**138. A** — Two rules work together. In each row the arrow turns a quarter turn clockwise, and each column keeps one shade: white, gray, black. After down and left comes up, and the right column is black, so the answer is a black arrow pointing up. Down or right breaks the turn, and gray breaks the shade.

**139. B** — Folding the napkin in half makes two layers of paper. The punch goes through both layers, so it makes one hole in each. When the napkin is opened, there are two holes, one on each side of the crease. One hole ignores the second layer. Three or four holes would need more folds or more punches.

**140. D** — The first fold makes two layers, and the second fold doubles them to four layers. One punch goes through all four layers, so the card has four holes when it is opened. Two holes would count only one fold. Three holes does not match any doubling, and eight holes would need a third fold.

**141. B** — One fold makes two layers, and every punch goes through both. So each of the five punches makes two holes, which gives ten holes when the sheet is opened. Five holes forgets the second layer. Eight holes and twelve holes come from slips in counting, because five times two is neither of those.

**142. D** — Folding like a letter makes three layers. Each punch goes through all three, so each punch makes three holes. Two punches make two times three, which is six holes. Two holes ignores the extra layers. Three holes counts only one punch, and four holes would come from doubling instead of tripling.

**143. C** — The hole sits right on the crease, so each layer holds half of the hole. When the paper is opened, those two halves meet and join into a single whole hole on the crease. Two holes would be right only if the hole were away from the fold. Three or four holes need more folds or punches.

**144. A** — The fold line runs across the middle, and the top half lands on the bottom half. The punch near the bottom left corner is far from the fold, so it goes through both layers. When opened, there is a hole near the bottom left corner and its mirror near the top left corner. Only one option pairs those two holes.

**145. B** — The right half folds onto the left half, so the crease is in the middle of the sheet. The punch near the top left corner is far from the crease, so it goes through both layers. Opening the sheet shows that hole and its mirror at the top right corner. The other choices all miss that pair.

**146. D** — Each fold doubles the number of layers: two, four, then eight. One punch goes through every layer, so each layer receives its own hole, and the opened sheet has eight holes. Three holes counts the folds instead of the layers. Six holes and four holes come from adding rather than doubling.

**147. C** — The bottom half goes up and covers the top half, so the fold sits at the bottom of the folded shape, in the middle of the sheet. A hole near that fold and the right edge makes a hole just above the middle and its mirror just below it. Both holes sit on the right side.

**148. D** — The diagonal fold runs from the top right to the bottom left, so it swaps the top left corner with the bottom right corner. A hole punched where those corners meet is copied at the opposite corner. The top right and bottom left corners are on the fold line itself. Both near the top left ignores the mirror image.

**149. A** — The two holes away from the fold go through two layers each, which makes four holes. The hole centred on the fold opens into one whole hole, so it adds only one. Four plus one is five holes. Four holes forgets the hole on the fold. Three holes counts every punch once, and six holes doubles the fold hole.

**150. B** — The left half covers the right half, so the fold is on the left of the folded shape, in the middle of the sheet. A hole near the top and close to that fold is copied just across the middle line, giving two holes side by side at the top middle. The other choices do not match.

**151. A** — The top right corner of the small folded square is a corner of the whole sheet, and it is away from both folds. Each fold mirrors the hole, so it appears once in each quadrant, near every corner of the opened sheet. A row across the top, one hole, and two holes all show fewer corners than four layers produce.

**152. C** — Two folds make four layers, and every punch goes through all four. Three punches therefore make three times four, which is twelve holes. Six holes would match only two layers. Nine holes comes from counting three layers, and eight holes comes from adding two punches to a count of six, so none of them match.

**153. B** — The corner where the folds cross is the centre of the sheet. A hole centred exactly there is cut into four quarter pieces, one in each layer. Opening the sheet joins them into one whole hole at the centre. Two holes or four holes would need the punch to sit away from the folds.

**154. C** — After both folds, the top edge of the small square is the middle line of the sheet, and its left edge is the sheet's left edge. A hole near the top left is near the left edge and just above the middle. Mirroring gives a pair on the left and a pair on the right, each straddling the middle.

**155. A** — After both folds, the left edge of the small square is the middle line of the sheet, and its top edge is the top edge of the sheet. A hole near the top left is near the top edge, just right of the middle. Mirroring gives a pair beside the middle at the top and a pair at the bottom.

**156. D** — The left edge of the small folded square is the first fold, which is the vertical centre line of the sheet. A hole centred there is whole once opened. The second fold copies it from the upper half to the lower half. That gives two holes on the vertical centre line. The other choices do not match.

**157. B** — The bottom edge of the small square is the horizontal fold, so the hole sits just above the middle height, halfway across the right half. Mirroring across the horizontal fold puts a partner just below it, and mirroring across the vertical fold repeats both on the left. That makes two pairs spread left and right along the middle height.

**158. A** — The three figures differ in shape and in size, but all of them are white. The best match is therefore the white heart. The black heart, the gray heart, and the striped heart each use a different shade, so none of them share the one feature that stays the same across the first three.

**159. D** — Each of the three figures has exactly one dot in the middle, and only the outer shape changes. A pentagon with one dot in the middle follows that rule. Two dots is too many, and no dot is too few. A line through the pentagon is a different mark, so those choices do not match.

**160. C** — The shade, size, and tilt of the three figures all vary, but each one is a triangle with three straight sides. So the best match is another triangle, which is the striped triangle. The striped square, circle, and star each have a different number of sides or curved edges, so they do not share the feature that stays the same.

**161. D** — The rectangle, the oval, and the triangle are all tall and thin, and each one stands upright. So the best match is a star that is also tall, thin, and standing up. The short wide star lying flat is the opposite, the star on its side is turned, and the short round star is not tall or thin.

**162. C** — The arrow, the boat, and the triangle all aim to the left, and only the kind of figure changes. A rocket pointing left follows that same rule. The rockets pointing right, up, and down are the same figure but face a different direction, so they do not share the leftward aim.

**163. B** — Every figure holds exactly two small shapes placed side by side, and only the kind of shape changes. Two small hearts side by side follows the same rule. Three hearts is too many, and one heart is too few. Two hearts stacked one above the other uses a different arrangement.

**164. A** — Each of the three figures is a solid shape with exactly one hole cut out of its middle. A star with one hole in the middle follows that rule. A solid star has no hole, and two holes is too many. A notch in the edge is open to the outside, so it is not a hole.

**165. B** — In each figure, a small shape sits inside a big shape of the same kind. A big star containing a small star follows that rule. A small circle inside the star breaks the matching shapes. A star beside a small star is not inside it, and a star with nothing inside has no small shape.

**166. A** — The pentagon has five sides, the star has five points, and the flower has five petals, so the shared feature is a count of five parts. A starfish with five arms matches. The clover with four leaves and the cross with four arms have four parts, and the flower with six petals has six parts.

**167. D** — Each of the three figures is an open line, with two ends that never meet to close up a shape. A wavy open line is also open. A closed circle, a closed square, and a closed triangle are all loops with no ends, so they do not share the feature that the first three have.

**168. C** — All three shapes are black and sit at the top of a box, while only the shape changes. A black star at the top of a box follows both rules. The bottom and the middle are different places, and a white star changes the shade. Each wrong choice breaks one rule that the first three share.

**169. B** — The three figures have different outside shapes, but each is filled with stripes that run straight up and down. A star with vertical stripes follows the same rule. Horizontal stripes and slanted stripes run in different directions, and dots are a different kind of fill, so none of them share the pattern.

**170. A** — The heart, the kite, and the tree can each be folded along a straight line down the middle so that the two halves match exactly. A butterfly shape has the same mirror match. A lightning bolt, a comma shape, and a spiral shape are lopsided, so their halves would not match if folded down the middle.

**171. C** — In each of the three figures, exactly the upper half is black and the lower half is white. A star with its top half black follows that rule. The bottom half and the left half are shaded in different places, and an all-black star has no white half, so those choices break the pattern.

**172. D** — All three shapes are white, and each has a black dot placed above it. A white star with a black dot above it keeps both features. A dot below it moves the dot to the other side, a black star changes the shade of the shape, and a white dot changes the shade of the dot.

**173. B** — In each figure, the outer shape is big and black, and the inner shape is small and white. A big black heart with a small white moon inside keeps both shades. The white heart with a black moon swaps them, the black moon on a black heart has no contrast, and the gray pair uses a different shade.

**174. C** — Each figure holds one fewer dot than it has sides: two dots for three sides, three dots for four sides, and four dots for five sides. A hexagon has six sides, so it should hold five dots. Six dots matches the sides, not one fewer. Four dots and three dots are too few.

**175. D** — Each of the three figures is shaded over exactly half of its area, and only the outside shape changes. An octagon with half shaded follows the same rule. One quarter shaded is too little, three quarters is too much, and an all-shaded octagon has no unshaded half, so each of those choices breaks the pattern.

**176. A** — Each figure is a pair, with the small shape on the left and the large shape on the right. A small cross on the left with a large moon on the right follows both parts. The large cross on the left reverses the sizes, two small shapes lack a large one, and a cross above a moon changes the layout.