4.19 Combined and Hidden Shapes: Test Pack

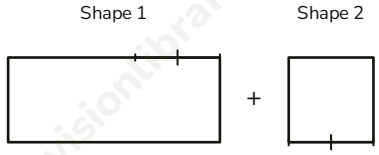
GL ASSESSMENT EP.N13 · Calculators not allowed · about 60 minutes

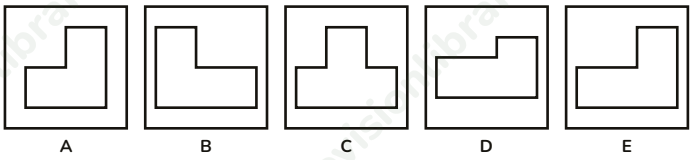
Total Marks

Name: _____ Date: ____ / ____ / _____

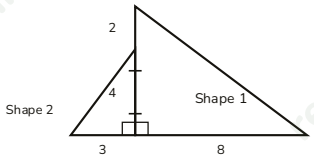
Answer ALL questions. Show all your working.

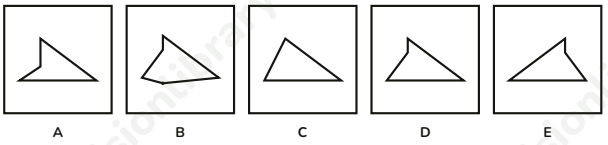
1 Shape 1 and Shape 2 below are joined so that the marked edge of Shape 2 lies along part of the marked edge of Shape 1 (the shared edge is erased, and any newly-collinear edges merge into one straight line). Which option, A to E, shows the resulting combined shape?



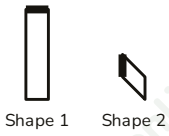


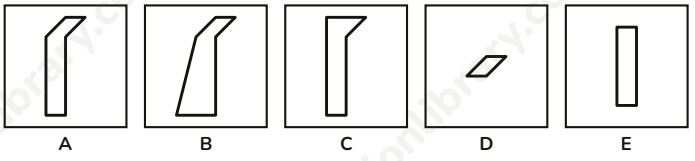
2 Shape 1 (a right-angled triangle) and Shape 2 (a smaller right-angled triangle) below are joined so that the marked edge of Shape 2 lies along part of the marked edge of Shape 1 (the overlapping part of the shared edge is erased, and any newly-collinear edges merge into one straight line). Which option, A to E, shows the resulting combined shape?



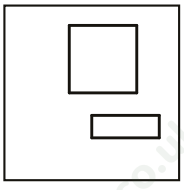


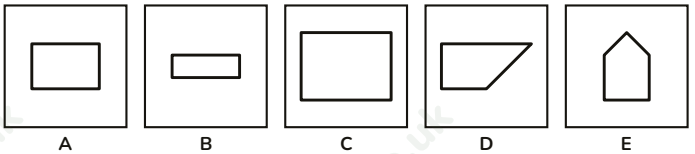
3 Shape 1 and Shape 2 are joined so that the thick edge of Shape 2 lies exactly along the thick edge of Shape 1. Shape 2 may be turned but not flipped over, and the shared edge disappears. Which option, A to E, shows the combined shape, with Shape 1 left where it is?





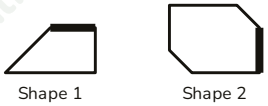
4 The figure below is made of straight lines only. Which one of the shapes A to E is hidden inside it, the same size and the same way up, with its whole outline traced along lines that are already drawn?

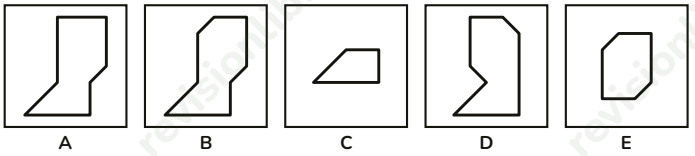




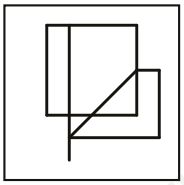
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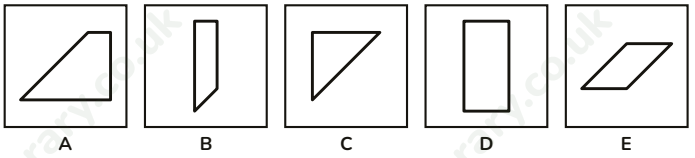
5 Shape 1 and Shape 2 are joined so that the thick edge of Shape 2 lies exactly along the thick edge of Shape 1. Shape 2 may be turned but not flipped over, and the shared edge disappears. Which option, A to E, shows the combined shape, with Shape 1 left where it is?





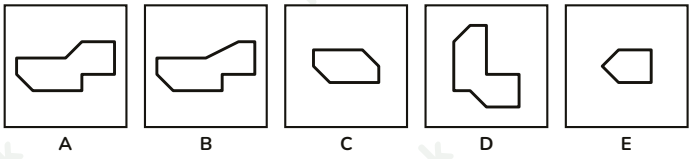
6 The figure below is made of straight lines only. Which one of the shapes A to E is hidden inside it, the same size and the same way up, with its whole outline traced along lines that are already drawn?



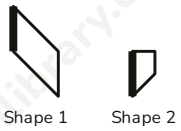


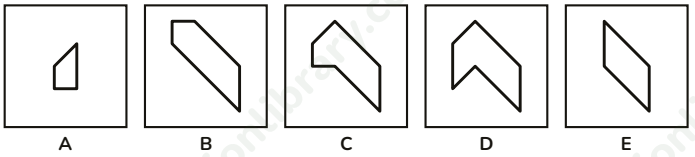
7 Shape 1 and Shape 2 are joined so that the thick edge of Shape 2 lies exactly along the thick edge of Shape 1. Shape 2 may be turned but not flipped over, and the shared edge disappears. Which option, A to E, shows the combined shape, with Shape 1 left where it is?



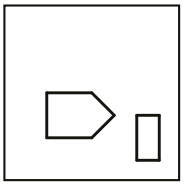


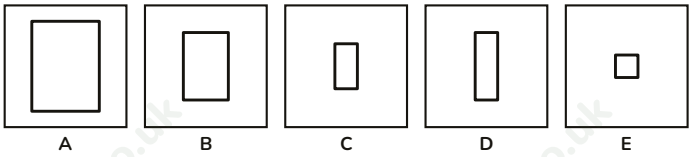
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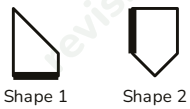


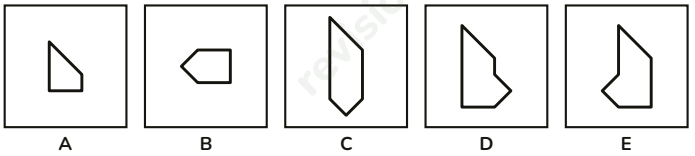
9 The figure below is made of straight lines only. Which one of the shapes A to E is hidden inside it, the same size and the same way up, with its whole outline traced along lines that are already drawn?





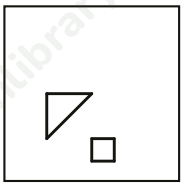
10 Shape 1 and Shape 2 are joined so that the thick edge of Shape 2 lies exactly along the thick edge of Shape 1. Shape 2 may be turned but not flipped over, and the shared edge disappears. Which option, A to E, shows the combined shape, with Shape 1 left where it is?

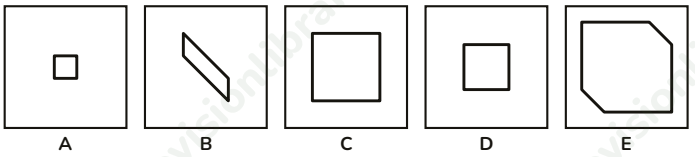




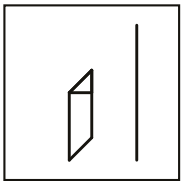
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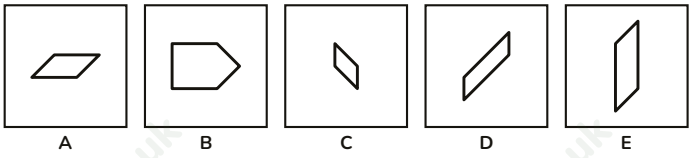
11 The figure below is made of straight lines only. Which one of the shapes A to E is hidden inside it, the same size and the same way up, with its whole outline traced along lines that are already drawn?



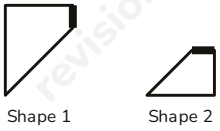


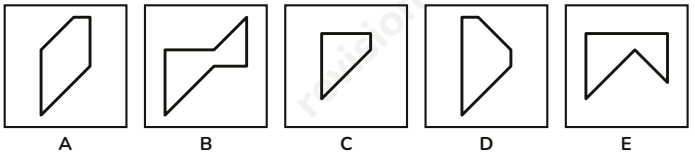
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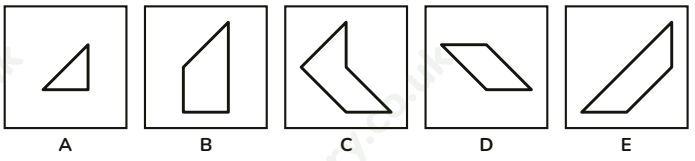
13 Shape 1 and Shape 2 are joined so that the thick edge of Shape 2 lies exactly along the thick edge of Shape 1. Shape 2 may be turned but not flipped over, and the shared edge disappears. Which option, A to E, shows the combined shape, with Shape 1 left where it is?



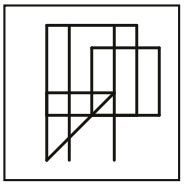


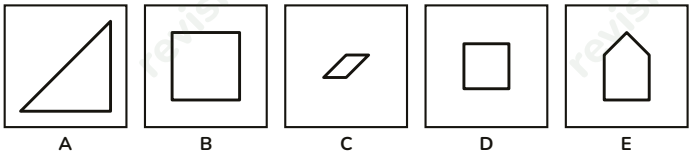
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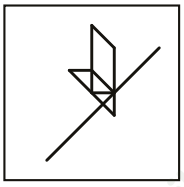


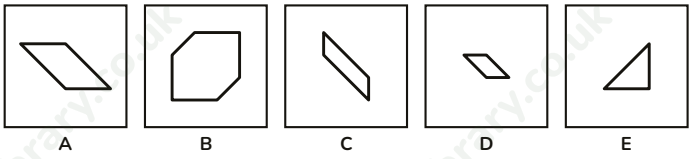
15 The figure below is made of straight lines only. Which one of the shapes A to E is hidden inside it, the same size and the same way up, with its whole outline traced along lines that are already drawn?



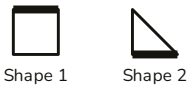


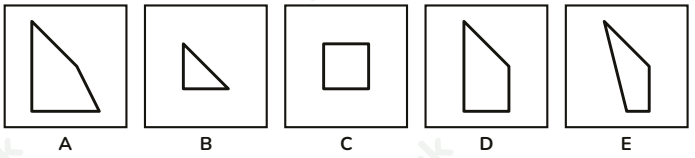
16





17 Shape 1 and Shape 2 are joined so that the thick edge of Shape 2 lies exactly along the thick edge of Shape 1. Shape 2 may be turned but not flipped over, and the shared edge disappears. Which option, A to E, shows the combined shape, with Shape 1 left where it is?



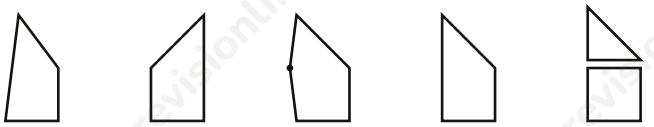


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18 Shape 1 and Shape 2 below are joined so that the marked edge of Shape 2 lies exactly along the marked edge of Shape 1 (the shared edge is erased, and any newly-collinear edges merge into a single straight line). Which option, A to E, shows the resulting combined shape?



Shape 1 Shape 2

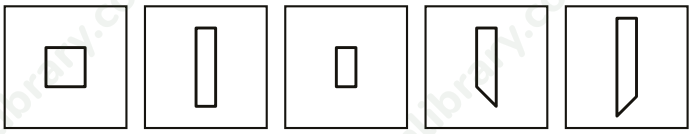


A B C D E

19 Shape 1 and Shape 2 are joined so that the thick edge of Shape 2 lies exactly along the thick edge of Shape 1. Shape 2 may be turned but not flipped over, and the shared edge disappears. Which option, A to E, shows the combined shape, with Shape 1 left where it is?



Shape 1 Shape 2

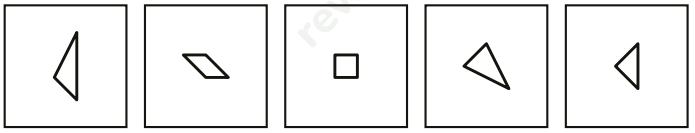


A B C D E

20

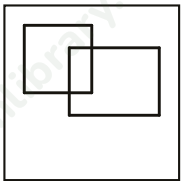


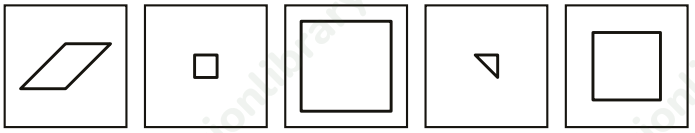
Shape 1 Shape 2



A B C D E

21 The figure below is made of straight lines only. Which one of the shapes A to E is hidden inside it, the same size and the same way up, with its whole outline traced along lines that are already drawn?





A B C D E

22 Shape 1 and Shape 2 are joined so that the thick edge of Shape 2 lies exactly along the thick edge of Shape 1. Shape 2 may be turned but not flipped over, and the shared edge disappears. Which option, A to E, shows the combined shape, with Shape 1 left where it is?

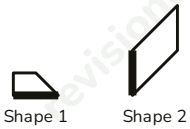


Shape 1 Shape 2



A B C D E

23

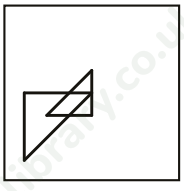


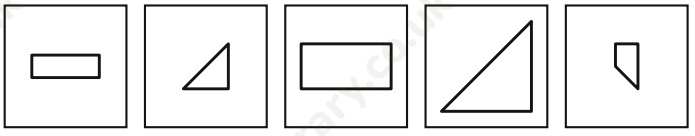
Shape 1 Shape 2



A B C D E

24 The figure below is made of straight lines only. Which one of the shapes A to E is hidden inside it, the same size and the same way up, with its whole outline traced along lines that are already drawn?

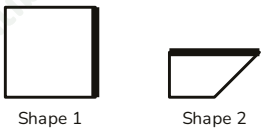


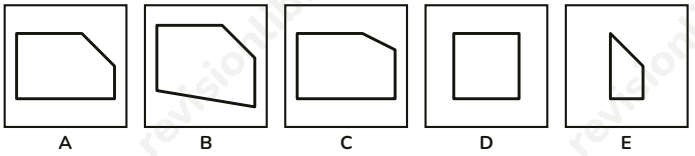


A B C D E

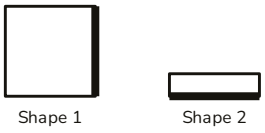
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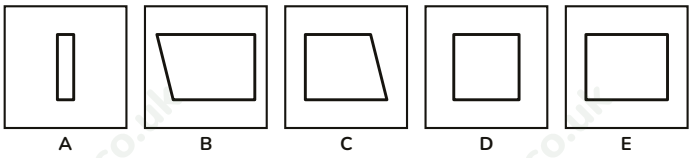
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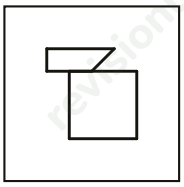


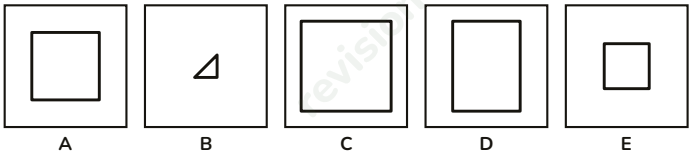
26



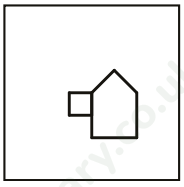


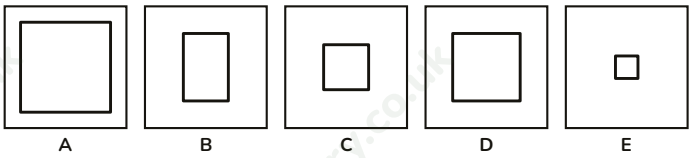
27 The figure below is made of straight lines only. Which one of the shapes A to E is hidden inside it, the same size and the same way up, with its whole outline traced along lines that are already drawn?



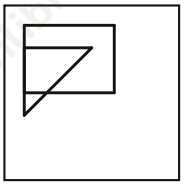


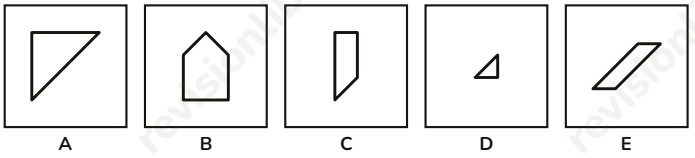
28



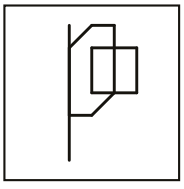


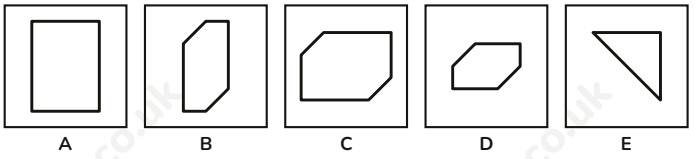
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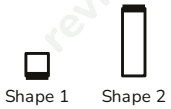


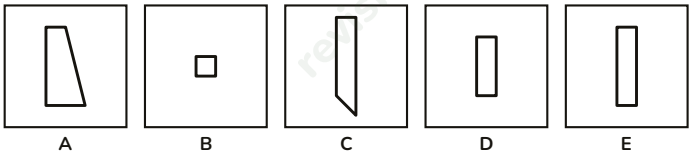
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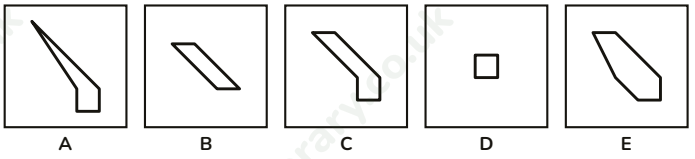
31 Shape 1 and Shape 2 are joined so that the thick edge of Shape 2 lies exactly along the thick edge of Shape 1. Shape 2 may be turned but not flipped over, and the shared edge disappears. Which option, A to E, shows the combined shape, with Shape 1 left where it is?





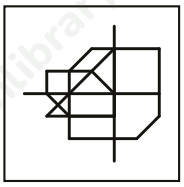
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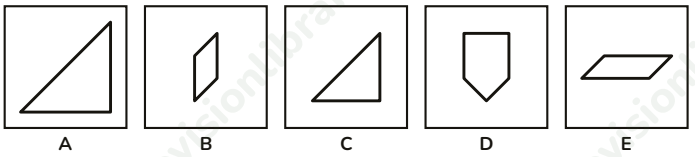




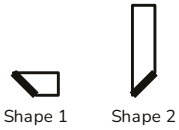
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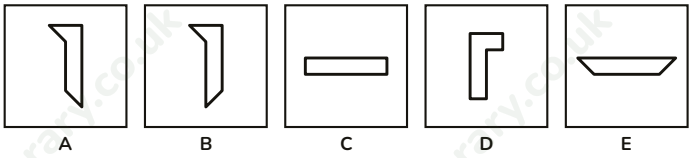
33 The figure below is made of straight lines only. Which one of the shapes A to E is hidden inside it, the same size and the same way up, with its whole outline traced along lines that are already drawn?



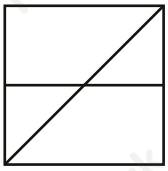


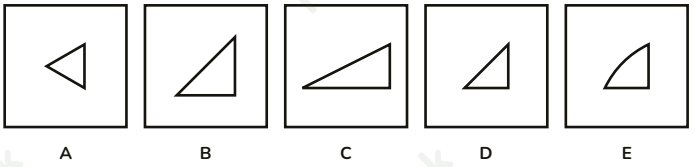
34 Shape 1 and Shape 2 are joined so that the thick edge of Shape 2 lies exactly along the thick edge of Shape 1. Shape 2 may be turned but not flipped over, and the shared edge disappears. Which option, A to E, shows the combined shape, with Shape 1 left where it is?



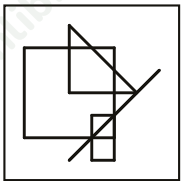


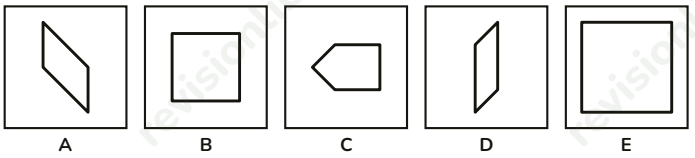
35 The figure below is made of straight lines only. Which one of the shapes A to E is hidden inside it - its exact outline can be traced using lines already drawn, with none added or altered?



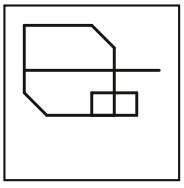


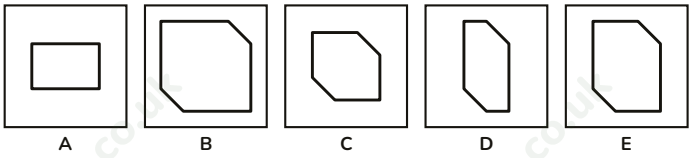
36 The figure below is made of straight lines only. Which one of the shapes A to E is hidden inside it, the same size and the same way up, with its whole outline traced along lines that are already drawn?



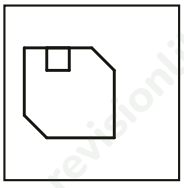


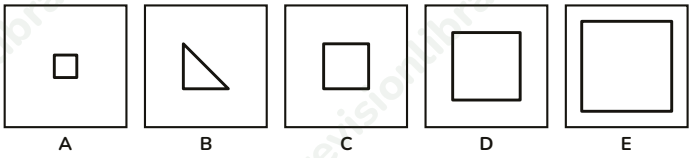
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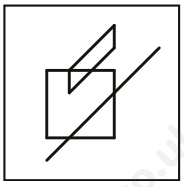


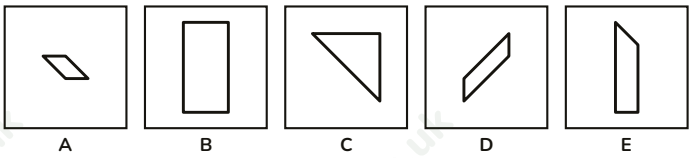
38





39





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Mark scheme · 4.19 Combined and Hidden Shapes: Test Pack

Question 1

selects the step hexagon with the square flush against the right-hand edge, full height 4 (option E), cao **B1**

Answer: E

Question 2

selects the quadrilateral with a single straight base and the step correctly positioned at (0,4) (option D), cao **B1**

Answer: D

Question 3

selects option A: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: A) A six-sided shape with 6 corners at (0, 4), (0, 0), (1, 0), (1, 4), (2, 5), (1, 5), measured in grid units from its lower-left corner

Question 4

selects option B: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: B) A four-sided shape with 4 corners at (0, 1), (0, 0), (3, 0), (3, 1), measured in grid units from its lower-left corner

Question 5

selects option B: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: B) An eight-sided shape with 8 corners at (2, 2), (0, 0), (4, 0), (4, 2), (5, 3), (5, 6), (3, 6), (2, 5), measured in grid units from its lower-left corner

Question 6

selects option A: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: A) A four-sided shape with 4 corners at (4, 3), (3, 3), (0, 0), (4, 0), measured in grid units from its lower-left corner

Question 7

selects option A: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: A) A 9-sided shape with 9 corners at (4, 1), (6, 1), (6, 3), (4, 3), (3, 2), (0, 2), (0, 1), (1, 0), (4, 0), measured in grid units from its lower-left corner

Question 8

selects option C: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: C) A six-sided shape with 6 corners at (1, 2), (3, 0), (3, 2), (1, 4), (0, 3), (0, 2), measured in grid units from its lower-left corner

Question 9

selects option C: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: C) A four-sided shape with 4 corners at (0, 0), (1, 0), (1, 2), (0, 2), measured in grid units from its lower-left corner

Question 10

selects option E: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: E) A six-sided shape with 6 corners at (3, 3), (1, 5), (1, 2), (0, 1), (1, 0), (3, 0), measured in grid units from its lower-left corner

Question 11

selects option A: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: A) A four-sided shape with 4 corners at (1, 1), (0, 1), (0, 0), (1, 0), measured in grid units from its lower-left corner

Question 12

selects option E: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: E) A four-sided shape with 4 corners at (0, 3), (0, 0), (1, 1), (1, 4), measured in grid units from its lower-left corner

Question 13

selects option E: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: E) A five-sided shape with 5 corners at (0, 4), (0, 0), (3, 3), (5, 1), (5, 4), measured in grid units from its lower-left corner

Question 14

selects option C: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: C) A five-sided shape with 5 corners at (2, 2), (2, 4), (0, 2), (2, 0), (4, 0), measured in grid units from its lower-left corner

Question 15

selects option B: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: B) A four-sided shape with 4 corners at (3, 0), (3, 3), (0, 3), (0, 0), measured in grid units from its lower-left corner

Question 16

selects option D: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: D) A four-sided shape with 4 corners at (1, 1), (0, 1), (1, 0), (2, 0), measured in grid units from its lower-left corner

Question 17

selects option D: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: D) A four-sided shape with 4 corners at (0, 0), (2, 0), (2, 2), (0, 4), measured in grid units from its lower-left corner

Question 18

selects the quadrilateral with the merged 8-unit left edge and slanted top from (4,4) to (0,8) (option D), cao **B1**

Answer: D

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Question 19

selects option B: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: B) A four-sided shape with 4 corners at (0, 0), (1, 0), (1, 4), (0, 4), measured in grid units from its lower-left corner

Question 20

selects option E: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: E) A triangle with 3 corners at (0, 1), (1, 0), (1, 2), measured in grid units from its lower-left corner

Question 21

selects option E: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: E) A four-sided shape with 4 corners at (3, 0), (3, 3), (0, 3), (0, 0), measured in grid units from its lower-left corner

Question 22

selects option A: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: A) A seven-sided shape with 7 corners at (2, 1), (6, 1), (4, 3), (1, 3), (0, 2), (0, 0), (1, 0), measured in grid units from its lower-left corner

Question 23

selects option A: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: A) A five-sided shape with 5 corners at (1, 3), (0, 3), (0, 2), (2, 0), (4, 0), measured in grid units from its lower-left corner

Question 24

selects option B: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: B) A triangle with 3 corners at (2, 2), (0, 0), (2, 0), measured in grid units from its lower-left corner

Question 25

selects option A: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: A) A five-sided shape with 5 corners at (4, 4), (0, 4), (0, 0), (6, 0), (6, 2), measured in grid units from its lower-left corner

Question 26

selects option E: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: E) A four-sided shape with 4 corners at (0, 4), (0, 0), (5, 0), (5, 4), measured in grid units from its lower-left corner

Question 27

selects option A: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: A) A four-sided shape with 4 corners at (0, 0), (3, 0), (3, 3), (0, 3), measured in grid units from its lower-left corner

Question 28

selects option E: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: E) A four-sided shape with 4 corners at (1, 0), (1, 1), (0, 1), (0, 0), measured in grid units from its lower-left corner

Question 29

selects option A: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: A) A triangle with 3 corners at (0, 0), (3, 3), (0, 3), measured in grid units from its lower-left corner

Question 30

selects option B: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: B) A six-sided shape with 6 corners at (0, 3), (0, 0), (1, 0), (2, 1), (2, 4), (1, 4), measured in grid units from its lower-left corner

Question 31

selects option E: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: E) A four-sided shape with 4 corners at (1, 4), (0, 4), (0, 0), (1, 0), measured in grid units from its lower-left corner

Question 32

selects option C: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: C) A six-sided shape with 6 corners at (3, 1), (1, 3), (0, 3), (2, 1), (2, 0), (3, 0), measured in grid units from its lower-left corner

Question 33

selects option C: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: C) A triangle with 3 corners at (3, 3), (0, 0), (3, 0), measured in grid units from its lower-left corner

Question 34

selects option C: the two pieces join along the thick edges and the shared edge is removed, leaving this outline (cao) **B1**

Answer: C) A four-sided shape with 4 corners at (5, 0), (5, 1), (0, 1), (0, 0), measured in grid units from its lower-left corner

Question 35

selects the isosceles right-angled triangle with legs 3 and 3 and a straight hypotenuse (option D), cao **B1**

Answer: D

Question 36

selects option E: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: E) A four-sided shape with 4 corners at (4, 4), (0, 4), (0, 0), (4, 0), measured in grid units from its lower-left corner

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Question 37

selects option B: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: B) A six-sided shape with 6 corners at (1, 0), (4, 0), (4, 3), (3, 4), (0, 4), (0, 1), measured in grid units from its lower-left corner

Question 38

selects option A: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: A) A four-sided shape with 4 corners at (0, 0), (1, 0), (1, 1), (0, 1), measured in grid units from its lower-left corner

Question 39

selects option D: every side of this shape lies along a line in the figure, and no other option can be traced (cao) **B1**

Answer: D) A four-sided shape with 4 corners at (0, 1), (0, 0), (2, 2), (2, 3), measured in grid units from its lower-left corner

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