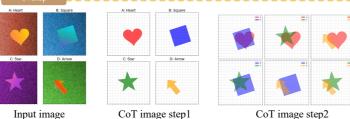## Convex Hull

Input image   CoT image

Q: Given 10 blue points, they form a blue convex hull. Given 10 green points, they form a green convex hull. How many red points fall in the overlapping portion of the blue and green convex hulls? Answer with only one digit.

Overlap

Input image   CoT image step1   CoT image step2

Q: Choose two images from the four images A-D and overlay them according to the black coordinate axis borders of each image. This will produce the overlapping portion of the shapes in the image. Which combination has the largest overlapping area? Output only two letters to represent the combination, such as 'AC'.

Mirror Clock

Input image   CoT image

Q: This is what a clock looks like in a mirror. What time will it be in 1 hours and 40 minutes?

Defuse A Bomb

Input image   CoT image

Q: Bomb in a Box — which wire will you cut to defuse it? You can't open the box or see beneath the metal slats, and the wires only change direction where they're visible.

Billiards

Input image   CoT image

Q: In the image, a billiards table is shown with its pockets numbered 1 – 6 in red. If the blue ball rolls in the direction indicated by the green arrow—without spin and with unlimited momentum—and is guaranteed to drop into a pocket, which pocket will it enter? Please answer with the single digit 1 – 6.
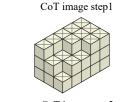
Paper Airplane

Input image

CoT image

Q: Based on the partial folding steps shown at the top of the image (ordered from left to right, top to bottom), can you infer which of the paper airplanes below is the final result?

Cubes Count

Input image

CoT image step1

CoT image step2

Q: Give the image, how many cubes are there in the image at most?
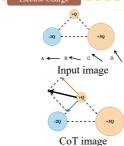
Rolling Dice: Two

Input image   CoT image step1

CoT image step2

Q: When the die is rolled along the black and red paths respectively, which path yields a higher total sum of the numbers on the bottom face at each step (answer with \"red\", \"black\" or \"same\")? What is the total sum for that path? Note: both paths have the same length.

Electric Charge

Input image

CoT image

Q: Analyze the forces acting on the topmost positive charge (+Q) and indicate the direction of the net force on it. Note: the size of each sphere does not represent the charge magnitude; use the label inside each sphere to determine its charge.

Gear Rotation

Input image   CoT image

Q: If the first gear in the image rotates slightly in the direction of the arrow, will the arrow on the final gear point to 1 or 2? Please answer with a number.

Multi-piece Puzzle

Input image   CoT image
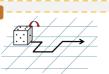
Q: Which three of the nine pieces on the right can be combined to exactly match the shape on the left? Please list the three piece numbers (comma-separated, ascending order).
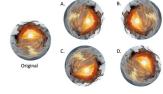
Puzzle

Input image

CoT image

Q: Given the object above. There is a missing piece in the white area. Which of the five pieces (A, B, C, D, or E) fits perfectly into the missing part of the object?

Rolling Dice: Top

Input image

CoT step1   CoT step2   CoT step3   CoT step4   CoT step5

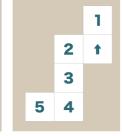Q: If the dice is rolled on the showed path, what will be the number on the top?

Mirror Pattern

Input image

CoT image

Q: Which option can be obtained by mirroring the original image once?

Unfolded Cube

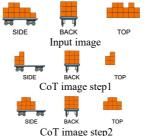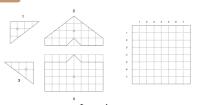Input image   CoT image step1   CoT image step2   CoT image step3

Q: Given three different perspectives of a cube (top left, top right, and bottom left in the left image) and the patterns on its six faces (bottom right in the left image), please fill in the corresponding patterns in its unfolded view (right image). Note that only the outer surface of the cube has patterns; the inner surface does not. That is, the unfolded view on the right represents the outer surface of the cube. The six patterns are represented by 'heart', 'circle,' 'moon,' 'arrow,' 'triangle,' and 'star,' respectively. The output format is '(number, shape),' with different correspondences separated by semicolons.

Trailer Cubes Count

SIDE   BACK   TOP
Input image

SIDE   BACK   TOP
CoT image step1

SIDE   BACK   TOP
CoT image step2

Q: Based on the three views, what's the maximum number of cubes that could be present?

Localizer

Input image   CoT image

Q: Tile the square on the right using the solid-outlined puzzle pieces on the left. Use all pieces; the final tiling must be exact—no leftovers, no gaps, and no overlaps. Each piece has a circle. After completing the tiling, return the coordinates of each circle in numerical order, using the format: [piece ID (e.g., 1), (x, y)]; separate entries with semicolons.

MIRA