CAT4 Level D practice questions

CAT4 is a reasoning test made by GL Assessment, and Level D is its version for Year 7 and Grade 6. For each of its eight types of question, here is a worked example, which is already answered and explained, then a question for your child to try. The questions are free on cat4practice.com/cat4-level-d, where your child can also do them on screen.

How to use it

1. Read each worked example together. Its answer and explanation are right under it.
2. Then your child tries the next question without help, and circles one letter.
3. When all eight are done, check the answers at the back. Then read the explanations together, starting with any question your child got wrong.

The answers start on a new page, headed "Answer key", so your child does not see them by accident. To print without them, stop before that page.

What your child needs: a pencil and an eraser, and rough paper (spare paper for doing sums) for the two number tests, number analogies and number series. In the real test, children get rough paper for these two tests too.

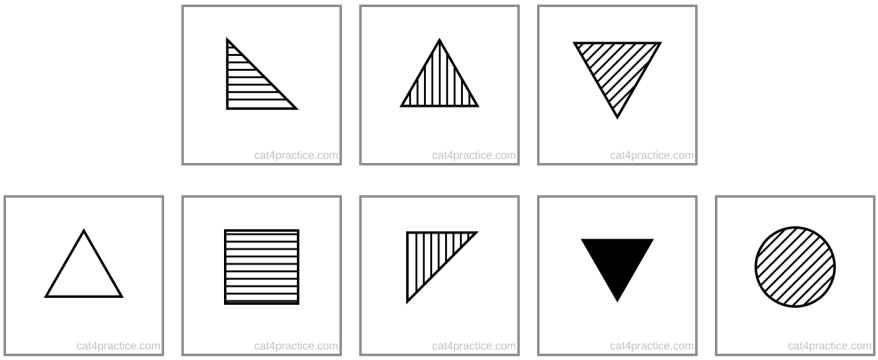
In the real test, each of the eight tests has a time limit. By our estimate, that leaves about 20 to 30 seconds for each question. For these questions, use no clock.

We wrote these questions ourselves, to match GL's description of each type. They are not GL's questions, and GL does not recommend any practice materials, including these. A result here is not a CAT4 score.

Figure classification

Look at the three figures (images) at the top. They are alike in some way. Which answer goes with them?

Worked example



C. Each of the three images is a triangle (a shape with three sides), and each one is striped. The stripes go a different way in each image, so the way they go does not matter. C is the only striped triangle.

- **A:** A triangle, but white, not striped.
- **B:** Striped, but a square: it has four sides, not three.
- **D:** A triangle, but black, not striped.
- **E:** Striped, but a circle, not a triangle.

Next time: Make a list of what all three images have (here: three sides, stripes). The right answer has everything on your list.

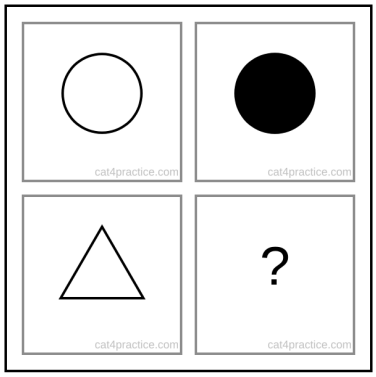
Question 1

A B C D E

Figure matrices

Which answer goes in the box with the question mark? The top two images show a change. Make the same change to the image on the left of the question mark.

Worked example

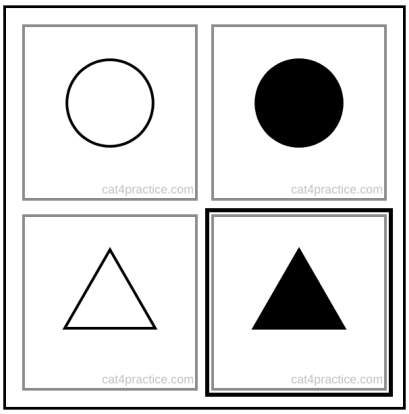


A B C D E

B. In the top row, the white circle becomes black. It stays the same shape and the same size. So the white triangle becomes black and stays a big triangle: B.

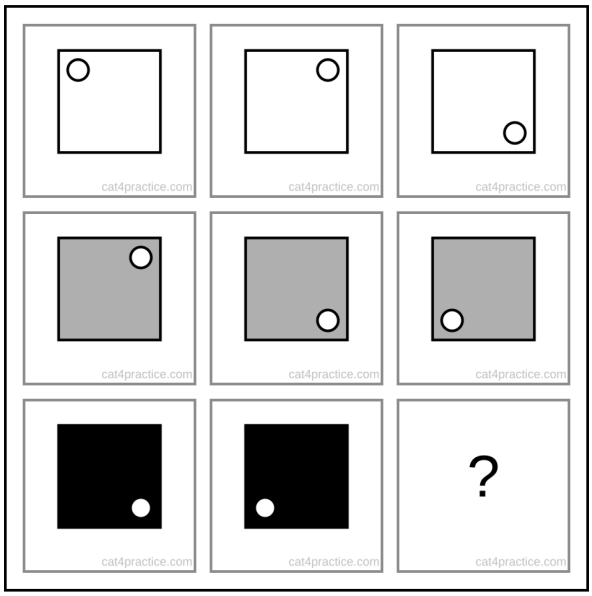
- **A:** The triangle has not changed: it is still white.
- **C:** The triangle has become grey, not black.
- **D:** Black, but a square: the shape should stay a triangle.
- **E:** A black triangle, but smaller: the size should stay the same.

Next time: Say what changes in the top row and what stays the same. Then make exactly that change to the image on the left of the question mark.



Which answer goes in the box with the question mark? Look for a pattern across each row (left to right) and down each column (top to bottom).

Question 2



A B C D E

Verbal classification

The three words in bold (dark letters) are alike in some way. Which answer is another one of the same kind? The answer is not the name for the whole group. For example, for pear, plum and mango, the answer would be another fruit, not the word "fruit".

Worked example

eagle owl parrot

A feather **B** bird **C** swan **D** nest **E** fly

C. Eagles, owls and parrots are all kinds of bird. A swan is a kind of bird too.

- **A:** Birds have feathers, but a feather is part of a bird, not a kind of bird.
- **B:** "Bird" is the name for the whole group. The answer must be one more kind of bird, like the three words.
- **D:** Birds build nests, but a nest is not a bird.
- **E:** Most birds fly, but flying is something they do, not a kind of bird. "Fly" is also the word for an insect, and an insect is not a bird.

Next time: Say the link in a short sentence, such as "they are all kinds of bird". Then try each answer in that sentence.

Question 3

bravery kindness honesty

A brave **B** hero **C** lie **D** patience **E** medal

Verbal analogies

The first two words are linked in some way. Which answer is linked to the third word in the same way?

Worked example

foot → shoe : hand →

A finger **B** arm **C** glove **D** sock **E** wave

C. You wear a shoe on your foot. You wear a glove on your hand.

- **A:** A finger is part of a hand, not something you wear on it.
- **B:** Your arm is joined to your hand. It is part of your body, not something you wear.
- **D:** A sock goes on a foot, like a shoe. It goes with "foot", not with "hand".
- **E:** You wave with your hand. That is something a hand does, not something you wear.

Next time: Make a sentence for the first two words ("you wear a shoe on your foot"). Then use the same sentence for the third word: "you wear a ___ on your hand".

Question 4

scales → weight : ruler →

A school **B** straight **C** pencil **D** measure **E** length

Number analogies

In each pair, the second number is made from the first in the same way. Which answer completes the last pair?

Worked example

[3 → 9] [7 → 13] [10 → ?]

A 13 **B** 16 **C** 18 **D** 20 **E** 30

B. In each pair the second number is 6 more than the first: 3 + 6 = 9 and 7 + 6 = 13. So 10 + 6 = 16.

- **A:** 13 is copied from the second pair. It does not come from 10.
- **C:** 18 is 10 + 8. Try + 8 on the first pair: 3 + 8 = 11, not 9.
- **D:** 20 is 10 + 10. Try + 10 on the first pair: 3 + 10 = 13, not 9.
- **E:** 30 is 10 × 3. Multiplying by 3 (3 times the number) works for the first pair (3 × 3 = 9), but not for the second: 7 × 3 = 21, not 13. The rule must work for both pairs.

Next time: Find a rule from the first pair. Then test it on the second pair before you use it.

Question 5

[6 → 16] [10 → 32] [7 → ?]

A 19 **B** 20 **C** 26 **D** 28 **E** 29

Number series

These numbers are a series: they follow a rule. Which number comes next?

Worked example

50 46 42 38 34 →

A 26 **B** 28 **C** 30 **D** 32 **E** 36

C. Each number is 4 less than the one before: 50 − 4 = 46, 46 − 4 = 42, and so on. So the jump from each number to the next is − 4 (take away 4), and the next number is 34 − 4 = 30.

- **A:** 26 is 34 − 8. Each jump is − 4, and 8 is double that.
- **B:** 28 is 34 − 6. Each jump is − 4, not − 6.
- **D:** 32 is 34 − 2. Each jump is − 4, not − 2.
- **E:** 36 is more than 34, but the numbers are going down.

Next time: Under the numbers, write the jump from each one to the next: − 4, − 4, − 4, − 4. The jumps show the rule.

Question 6

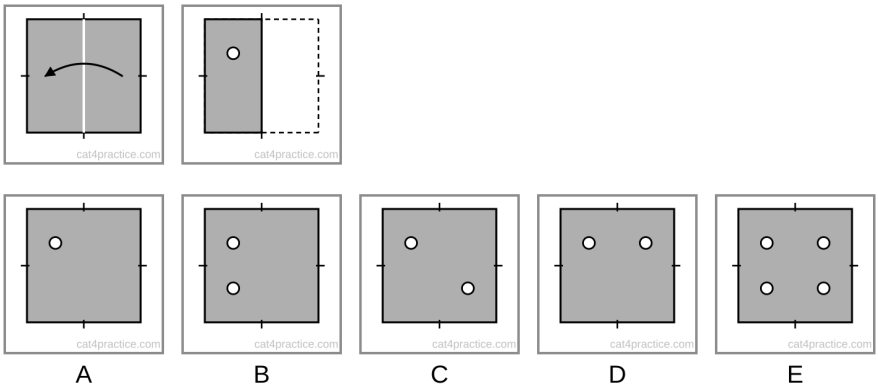
4 7 12 19 28 →

A 37 **B** 39 **C** 40 **D** 47 **E** 56

Figure analysis

A square of paper is folded. Then one or more holes are punched through the folded paper, through every layer. Which answer shows the paper when it is unfolded?

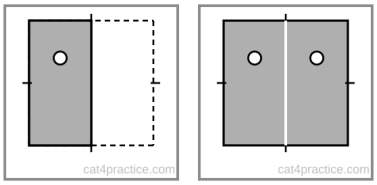
Worked example



D. The right half is folded over onto the left half, so the hole goes through two layers of paper. When you unfold the paper, one hole stays where it was punched. The other appears in the right half, level with the first one and the same distance from the fold, as in a mirror: D.

- **A:** Only one hole, in the left half. The right half was folded over onto the left half and punched too, so the right half needs a hole as well.
- **B:** The second hole is below the first. But the fold line goes straight up and down the middle, so the matching hole is beside the first one, on the other side of the fold line.
- **C:** The second hole is in the right half, but low down. The matching hole stays at the same height.
- **E:** Four holes, but there were only two layers of paper.

Next time: Each layer of paper gets its own hole. When you unfold, put a matching hole on the other side of the fold, the same distance from it. Unfold one fold at a time.



Question 7

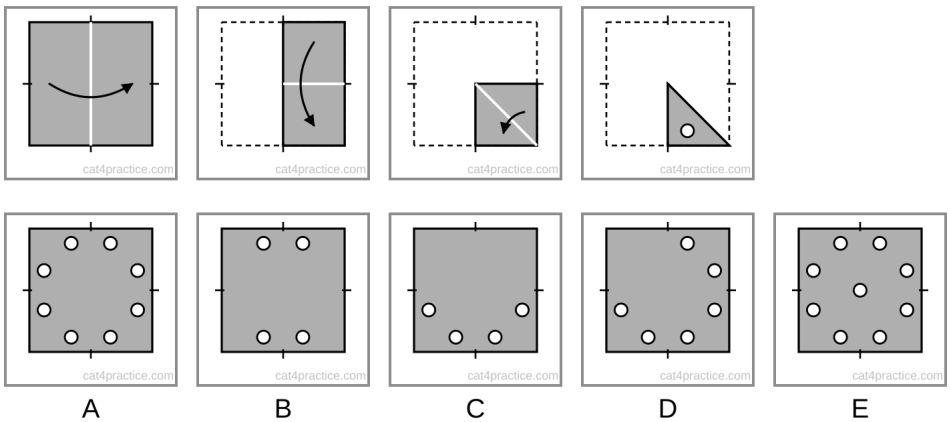
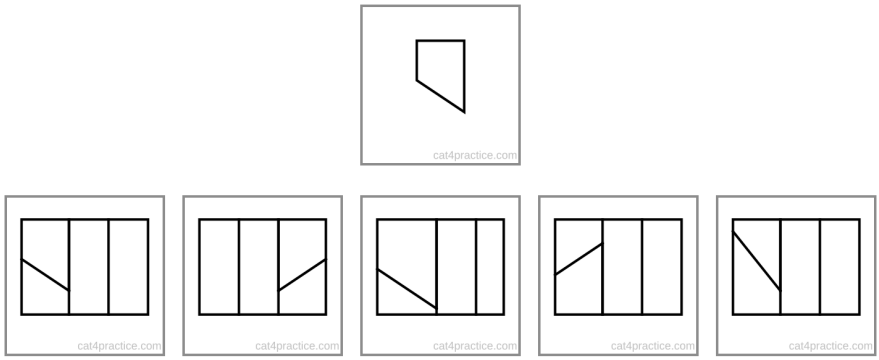


Figure recognition

Which image hides the shape at the top? It is the same size and faces the same way: not turned round, and not a mirror image. Each of its sides is drawn in that image, as a whole line or as part of a longer line. (In the real test, the shape is drawn below the five images.)

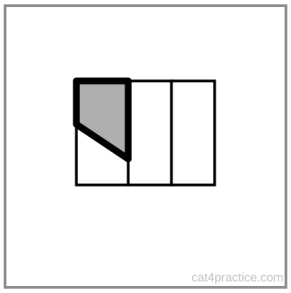
Worked example



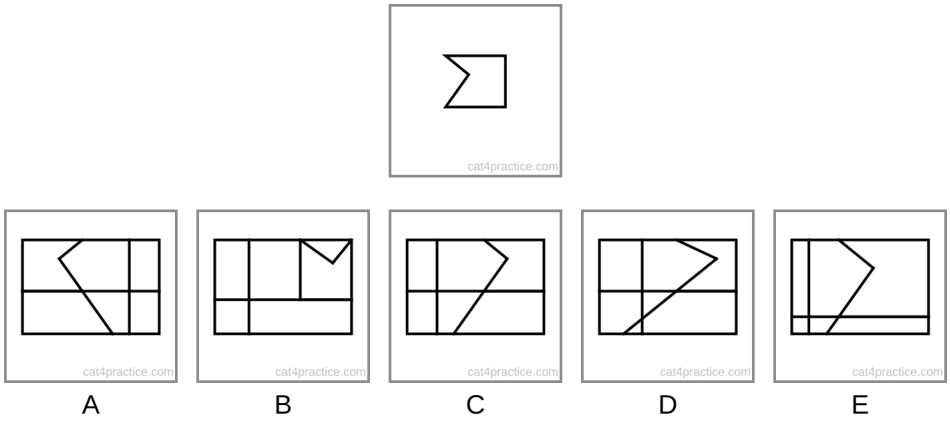
A. The shape is hidden in the left part of A. Its top is part of the top edge. Its short left side is part of the left edge. Its sloping side is the sloping line. Its long right side is the top part of the left one of the two upright lines inside the rectangle. That part ends where the sloping line meets it. It is the same size and faces the same way.

- **B:** The shape is there, but as a mirror image: its long upright side is on the left.
- **C:** The same shape, but bigger. It must be the same size.
- **D:** The shape is there, but as a mirror image from top to bottom (like a reflection in water): its sloping side is at the top.
- **E:** Close, but the left end of the sloping side is much higher than in the shape at the top, so the shape is different.

Next time: First find the most unusual part of the shape at the top (here its sloping side). Then check every side from there.



Question 8



Answer key

Question	Type	Answer
1	Figure classification	D
2	Figure matrices	C
3	Verbal classification	D
4	Verbal analogies	E
5	Number analogies	B
6	Number series	B
7	Figure analysis	A
8	Figure recognition	C

Answers explained

Question 1

D. Count the sides of each figure: the straight edges round the outside. The white L shape has 6 sides, the grey shape has 6, and the black V shape has 6. The shapes and colours are all different, so only the number of sides matters. D has 6 sides: the top, the bottom, the left side, a short upright side on the right, and two short slanted sides where its right corners are cut off.

- **A:** A has 5 sides. Its right end comes to a point, so it has one side fewer than D.
- **B:** B is an arrow with 7 sides.
- **C:** C looks like the black V shape, but it has only 4 sides: it has no short upright sides at its ends.
- **E:** E looks like the grey shape at the top, but count its sides: it has 7, not 6.

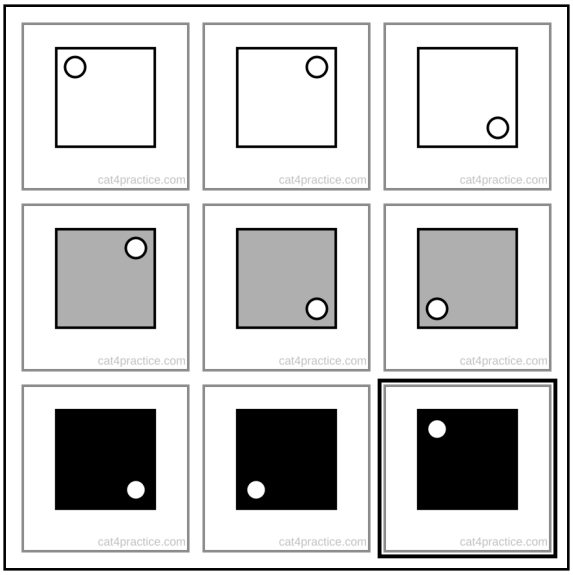
Next time: To count sides, put your finger on one corner and go round the shape, counting each edge once until you are back where you started.

Question 2

C. Two rules. Along each row, the small white ring moves one corner clockwise (like a clock's hand: top left, top right, bottom right, bottom left, then round again). In the bottom row it goes from the bottom right corner to the bottom left, so next it moves round to the top left. Down each column the square gets darker: white, grey, black. So the answer is a black square with the ring in its top left corner: C.

- **A:** In A the ring is still in the bottom left corner: it has not moved on.
- **B:** In B the ring has moved two corners on, to the top right, not one.
- **D:** D is grey, but the bottom row is black. Its ring has not moved on either.
- **E:** In E the ring has gone back to the bottom right corner: that is a move anticlockwise (the other way round).

Next time: In a nine-box square, follow one thing along the rows and another down the columns. A part that moves round the corners carries on from the top left after the bottom left.



Question 3

D. Bravery, kindness and honesty are all good qualities: things that make someone a good person. Patience is one too: being able to wait calmly.

- **A:** "Brave" describes a person (a brave girl). The words in bold are names of qualities: "bravery", not "brave".
- **B:** A hero is a person, often a brave one. A hero is not a quality.
- **C:** A lie is something untrue that a person says. It goes with honesty (an honest person does not lie), but a lie is not a quality that a person has.
- **E:** A medal is a prize you can win for bravery. It is a thing, not a quality.

Next time: Check the kind of word: the words in bold are names of qualities ("bravery"), so an answer that describes a person ("brave") does not fit.

Question 4

E. Scales measure weight (how heavy something is). A ruler measures length (how long something is).

- **A:** You may use a ruler at school, but a school is a place, not something a ruler measures.
- **B:** A ruler helps you draw straight lines, but "straight" is not something it measures.
- **C:** You use a pencil with a ruler, but a pencil is a thing, not something a ruler measures.
- **D:** "Measure" is what a ruler does, not what it measures.

Next time: Make a sentence: "scales measure weight". Then: "a ruler measures ___".

Question 5

B. Two steps: take away 2, then multiply by 4 (× 4: 4 times the number). 6 − 2 = 4, and 4 × 4 = 16. 10 − 2 = 8, and 8 × 4 = 32. So 7 − 2 = 5, and 5 × 4 = 20. The same rule can also be written with the steps the other way round, but then the number changes: multiply by 4, then take away 8 (taking away 2 before × 4 is the same as taking away 2 × 4 = 8 after). Check: 6 × 4 − 8 = 16, and 10 × 4 − 8 = 32. Both rules give 20: 7 × 4 − 8 = 20.

- **A:** 19 is 7 × 3 − 2. The rule "× 3, then − 2" works for the first pair (6 × 3 − 2 = 16), but not for the second: 10 × 3 − 2 = 28, not 32.
- **C:** 26 is 7 × 4 − 2: it swaps the two steps but still takes away 2. Check on the first pair: 6 × 4 − 2 = 22, not 16. Multiplying first works only if you then take away 8.
- **D:** 28 is 7 × 4: it multiplies by 4 and takes nothing away. Check on the first pair: 6 × 4 = 24, not 16.
- **E:** 29 is 7 + 22. Adding 22 works for the second pair (10 + 22 = 32), but not for the first: 6 + 22 = 28, not 16.

Next time: With two steps, check your rule on both pairs. If you swap the steps, the number you take away changes: take away 2, then × 4 is the same rule as × 4, then take away 8.

Question 6

B. Look at how much each number goes up by: + 3, + 5, + 7, + 9. Each jump is 2 more than the one before, so the next jump is + 11, and 28 + 11 = 39.

- **A:** 37 is 28 + 9, the last jump again. But each jump is 2 more than the one before.
- **C:** 40 is 28 + 12. The next jump is + 11 (9 + 2), not + 12.
- **D:** 47 is 19 + 28, the last two numbers added together. Adding the last two numbers does not make the series: the first two numbers, 4 and 7, add up to 11, but the number after 7 is 12.
- **E:** 56 is 28 × 2. Doubling does not make the series: 4 × 2 = 8, not 7.

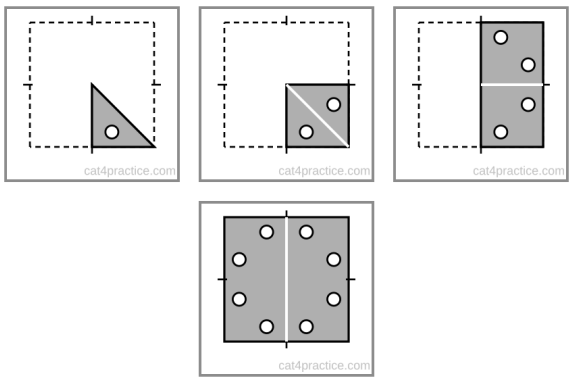
Next time: Write the jumps down. If they change, look for a pattern in the jumps themselves.

Question 7

A. The paper is folded three times: left half over right, then top half down, then the small square in half from corner to corner, into a triangle. That makes eight layers, so the hole becomes eight holes. Undo the last fold first: the hole gets a matching hole across the sloping fold line. Then undo the top fold: both holes get a matching hole in the top half. Then undo the first fold: all four get a matching hole in the left half. Eight holes, two near the middle of each side: A.

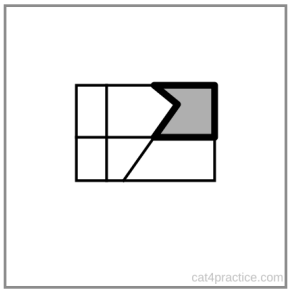
- **B:** B forgets the last fold, from corner to corner: four holes.
- **C:** C undoes the last fold and the first fold, but not the top fold: the top half needs holes too.
- **D:** D has six holes: the top left part has lost its two holes.
- **E:** E has nine holes, one of them in the very middle. No hole was punched there: eight layers make eight holes.

Next time: Count the layers before you unfold: each fold in half doubles them. Then undo the folds one at a time, last fold first.



Question 8

C. The shape, a box with a V cut into its left side, is in the top right of C. Its top and right sides are parts of the edges of the black rectangle, and its bottom is part of the line from the left edge to the right edge. Two sloping lines make the V, with its point a little above the middle. The upper one is short. The lower one goes on past the shape to the bottom edge. Only its top part, down to the line from the left edge to the right edge, is a side of the shape.

- **A:** A has the shape as a mirror image: the V is cut into its right side.
- **B:** B has the shape turned: the V is cut into its top.
- **D:** D has a box with a V that is much deeper: its point reaches more than halfway across the box.
- **E:** E has the same shape, but bigger: about one and a half times as wide and as tall.

Next time: If a line goes on past the shape, use only the part that is a side of the shape.