



PEOPLE IMPROVE PERFORMANCE

Connector Ability

Candidate brochure

Content

1	Why this brochure?	3
2	Why tests?	3
3	What is Connector Ability: what is being tested?	4
4	How does computer testing work?	4
4.1	Taking the test	4
4.2	Which steps to take when taking the test?	4
4.2.1	Personal data and background questions	4
4.2.2	General instruction	5
4.2.3	Instruction per subtest	5
4.2.4	The actual test	5
4.3	Protection of personal data	6
5	How to prepare?	6
5.1	The basis for reliable test conditions	6
5.2	Instruction and sample questions	6
5.2.1	Series of Figures	7
5.2.2	Matrices	16
5.2.3	Series of Numbers	26

1 Why this brochure?

This brochure wishes to give you insight into the upcoming testing procedure. It is important for you to start the testing procedure well-informed and that you are relieved of any uncertainties about the ins and outs of the tests in the procedure.

Specifically, you will receive an instruction and sample questions for the Connector Ability test.

The brochure wishes to give you an answer to the following questions:

- Why tests?
- What is Connector Ability: what is being tested?
- How does computer testing work?

It is very important that you prepare yourself for the test. Then you know what to expect and, besides that, it is important that everyone who takes this test knows what the test is about. Therefore, this brochure thoroughly enters into:

- How to prepare?
- Instruction per subtest and sample questions.

2 Why tests?

Tests are used to gain an image of the candidate that is as objective as possible. Each candidate is given a large number of questions to answer and problems to solve. The test situation is the same for each candidate. The candidate's results are compared with the results of a large group of people who have taken the same test and who have had a similar education. The results of these people have been processed into a table of comparison, also referred to as a norm table.

Tests generally give a reliable image of a person's intellectual abilities and personal characteristics. Characteristics which are not relevant, such as race, sex, or appearance, have no bearing on the result.

Finally, tests are used because they have a relatively high predictive value. The connection between the test results and (later) behavior in the position is examined. If, for example, it appears that a lot of people with the same test results do well in a particular profession, then we can expect that someone with a similar test result will also perform well in that profession.

3 What is Connector Ability: what is being tested?

Connector Ability is an intelligence test, a test that measures problem-solving ability.

Connector Ability consists of three subtests:

- Series of Figures. This subtest measures the ease with which someone can complete logical reasoning;
- Matrices. This subtest measures the ease with which someone can analyze and continue complicated relationships;
- Series of Numbers. This subtest measures the ease with which someone can analyze and continue the relationship between numbers.

4 How does computer testing work?

4.1 Taking the test

The Connector Ability will be administered with the help of a computer. Even if you have little experience with computers you will notice that computer testing is very easy.

The questions appear on screen, after which you choose from a number of possible answers. This is done with the computer mouse. Pen and paper will be ready for use. These are also the only aids that you may use during the test and which you are to hand in at the end. Cellular phones, calculators and this brochure are not allowed in the testing room.

4.2 Which steps to take when taking the test?

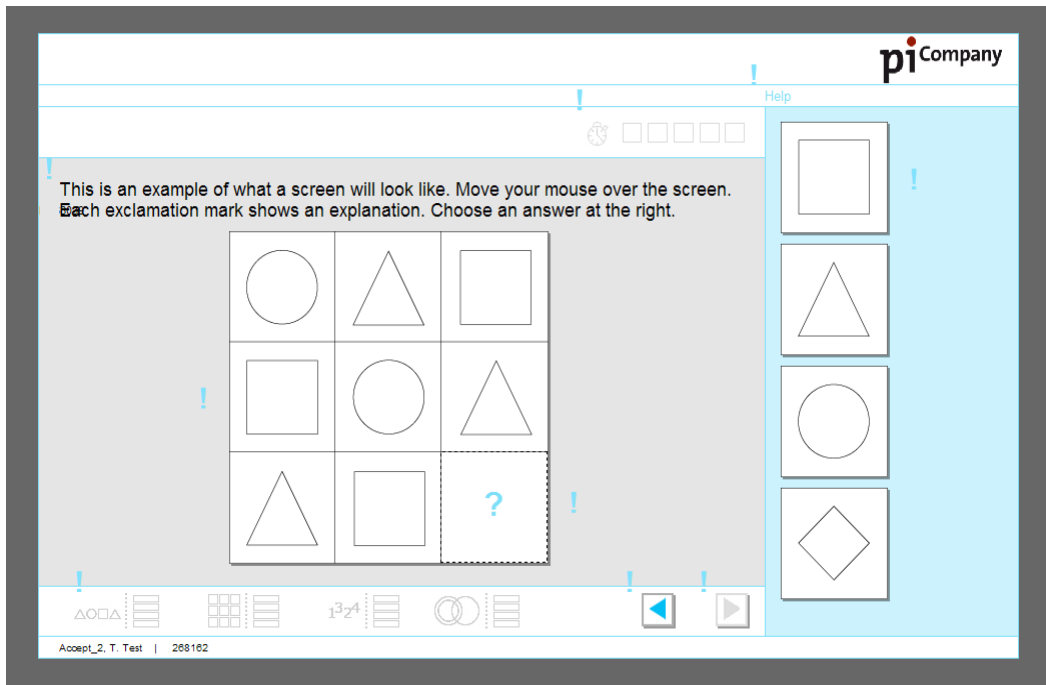
4.2.1 Personal data and background questions

Before you start with the test, you are asked to indicate whether your personal data are correct. These data refer to your name and birth date.

Next, we ask you to provide some more data on your personal background, for example on your education, work experience and on your and your parents' country of birth. This information is used for research purposes only. Data are processed anonymously and are not in any way used in reporting or in interpreting your test results.

4.2.2 General instruction

Based on the screen below we will explain how the test works.



By moving the mouse across the screen the various parts of the screen are explained.

The **problem** can always be seen in the middle of the screen.

The **answering buttons** are on the right of the screen. By clicking on these buttons you choose an answer. This answer can always be changed (by clicking on a different answer).

At the top of the screen you see a **time bar**.

4.2.3 Instruction per subtest

After exiting the test screen, the instruction of the first subtest will start. This instruction is identical to the instruction presented in this brochure. Also in case of the actual test, you can go through this instruction and sample questions at your own pace. Once you have understood the examples you can start the actual test. The time will not start to run until then.

4.2.4 The actual test

After the instruction, the actual subtest will start. For example: Series of Figures.

The number of questions you receive in each subtest, depend on the answers you give. The computer program offers questions until it has been able to estimate your problem-solving ability based on your answers. For each question you have to give an answer within a limited number of minutes, however, for most people this time is sufficient to be able to answer the question.

Your answers will then be checked and stored by the computer. In the report, your scores will be compared to the scores of people with a comparable level of education.

4.3 Protection of personal data

You may wonder about the protection of the information entered into the computer. Measures have been taken to prevent that your personal and test information, which are stored in the computer, can be accessed by anyone without authorization. Your personal data is stored in a file in such a way that those who are not meant to have this information have no access to it. This way your personal details are protected.

5. How to prepare?

5.1. The basis for reliable test conditions

What is most important is that you are fit and relaxed. Should you not feel well on the day of the test, please tell the test assistant this beforehand (by telephone, if necessary). As an alternative (if possible) you can be tested on another day. If you do the test, the result will be valid.

If you are dyslexic or if you expect that other language problems may influence the test results, please tell the test assistant beforehand (by telephone, if necessary).

When the tests are held you will be given an explanation about how you are supposed to do the different parts. It is wise to read through this brochure beforehand, so that you know what you will be dealing with and you can concentrate fully on the problems.

5.2 Instruction and sample questions

For each subtest, you receive an instruction below. You can practice with sample questions, so that you will know what the particular subtest is all about before you start taking the actual subtest.

The sample questions will give you a good impression of what the particular subtest is all about; however, questions in the actual test and the sample questions can differ in difficulty.

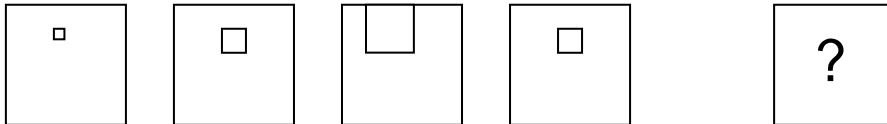
Note: You can also practice on PI Company's website: www.picompany.nl. Click on 'English', on the link 'Connector Ability' and 'Practice the Connector Ability'. Note: the test report gives an indication of your general intelligence. The purpose however of this test is to practice questions that are comparable to the actual test questions.

5.2.1 Series of Figures

You are shown four boxes. Each box contains a figure.

The question is: **What should the fifth box contain?**

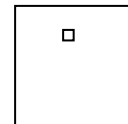
An example:



Something changes each time. From one box to the next. Look closely at what changes. And continue that change.

The square first increases in size. And then it becomes smaller. The square in the last box should therefore be smaller again.

This is the figure that should replace the question mark:



A figure can change:

Size:



Thickness:



Type of contents:



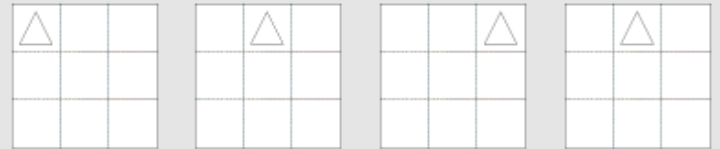
Contents can turn:



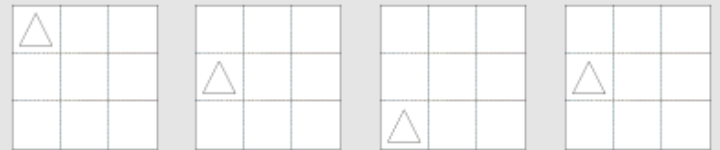
Each box actually consists of nine (invisible) boxes. Or: nine places for a figure.

A figure can go to a different place in the box, as follows:

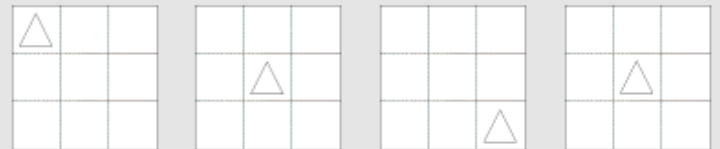
- From left to right
(or from right to left):



- From top to bottom
(or from bottom to top):

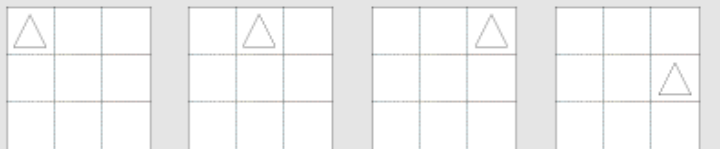


- Diagonally:



A figure can also turn like the hands of a clock (clockwise or anti-clockwise):

- Moving 1 place each time:



- Moving 2 places each time:



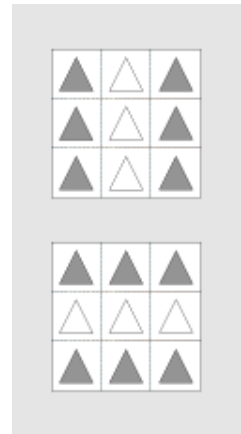
- Moving 3 places each time:



The row or column the figure is in can also determine how the figure changes.

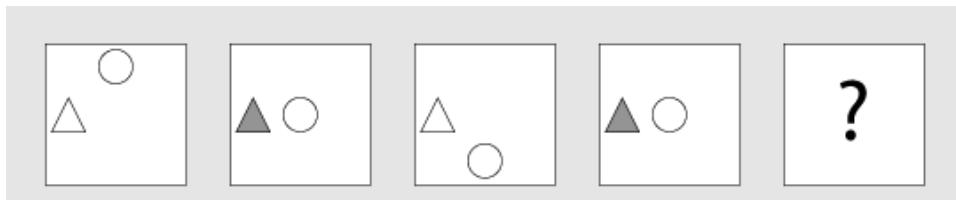
Two examples:

- All the figures in a particular column (left, middle, right) change in the same way (become dark or light);
- All the figures in a particular row (top, middle, bottom) change in the same way (become dark or light).



Several things can change in one figure (for example: contents and place). And there are often several figures in one box. Each figure then goes through its own change.

An example:



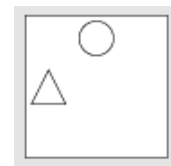
The triangle stays where it is and changes its contents.

The triangle in the last figure should therefore be empty again.

The circle moves up and down in the middle.

The circle in the last figure should therefore go up further.

The question mark should therefore be replaced by this figure:



Sample questions

You will now be presented with six sample questions. The answer on each sample question is presented on the next page.

Sample question 1:

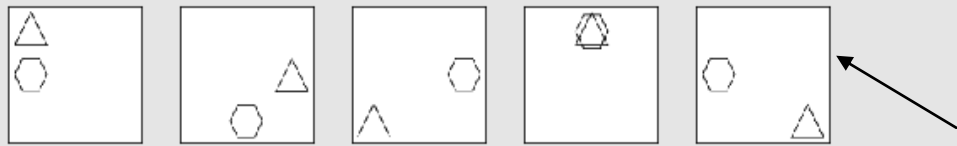
Which figure most logically continues this series?

Four possible answers are shown in a vertical column on the right:

- Option 1: Hexagon at top-left, Triangle at bottom-right.
- Option 2: Hexagon at top-right, Triangle at bottom-right.
- Option 3: Hexagon at top-left, Triangle at bottom-left.
- Option 4: Triangle at bottom-left, Hexagon at top-right.

At the bottom of the interface, there is a toolbar with icons for geometric shapes (triangle, square, circle, rectangle), a grid, mathematical symbols (1, 3, 2, 4), Venn diagrams, and a play button.

The right answer is:

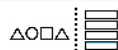


Imagine that each square is divided into nine boxes.
Look at each square in turn, going from left to right. This is what changes:

- The triangle keeps moving clockwise, three places.
- The hexagon keeps moving anti-clockwise, two places.

Sample question 2:

Which figure most logically continues this series?



Imagine that every box is divided into nine sections. This is what changes:

The triangle keeps moving two places, clockwise. In the fourth box the triangle is in the top left corner and it will move to the top right corner.

Two times the rectangle takes a diagonal position, followed by a horizontal position. In the fourth box, the rectangle again takes a diagonal position and now it stays like that.

The contents of both the triangle and the rectangle change: very dark-empty-a little bit darker-very dark. So after becoming darker, these shapes turn empty again.

Which figure most logically continues this series?

Options:

- Option 1: Triangle at top-left, Circle at top-right.
- Option 2: Triangle at top-left, Circle at bottom-right.
- Option 3: Triangle at center, Circle at bottom-right.
- Option 4: Triangle at center, Circle at bottom-left.
- Option 5: Triangle at center-right, Circle at bottom-right.

The right answer is:



- The circle moves diagonally (from bottom left to top right and then, with an intermediate step, back to bottom left). So it moves from the bottom left corner to the top right corner.
- The thickness of the outline of the circle changes (first it becomes thicker, then even thicker and then a little thinner: there are three different thicknesses). So the circle becomes a little thinner again.

The triangle first goes down (in the middle column) and then back up again.

The size of the figures changes too (all the figures in the first and third column are big; all the figures in the second column are small).

Sample question 4:

Which figure most logically continues this series?



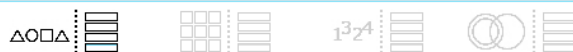
The right answer is:



- The triangle moves one place to the right each time and then to the left again (one step at a time). In the fourth square the triangle is in the middle. The triangle moves one more step to the left.
- The circle also moves one place to the right each time and then to the left again (one step at a time). In the fourth square the circle is on the left. The circle now moves one step to the right again.

Sample question 5:

Which figure most logically continues this series?



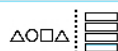
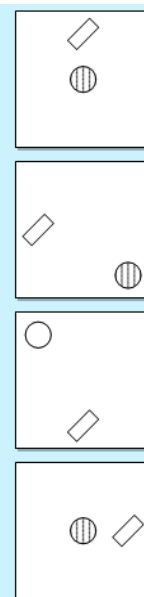
The right answer is:



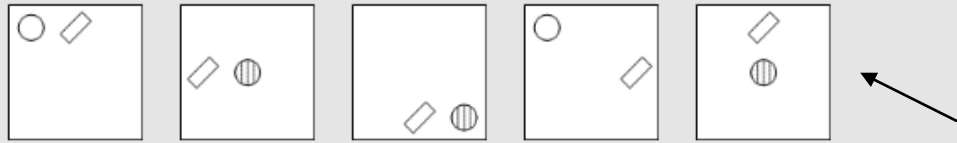
- The triangle moves step by step to the left each time, and then step by step to the right. The triangle moves one more place further to the right.
- The square goes down, and then up again (in the middle column). The square moves one more place up.
- A figure to the left or the right has a thick border. The triangle is now on the right. So the triangle gets a thick border.

Sample question 6:

Which figure most logically continues this series?



The right answer is:



Imagine that every box is divided into nine sections. Look from left to right. This is what changes:

The rectangle keeps moving two places, anti-clockwise. In the fourth box, the rectangle is in the middle of the right column. So the rectangle moves two steps anti-clockwise, to the top of the middle column.

The circle moves diagonally (from the top left corner to the middle column, then to the bottom right corner and back again to the top left corner). So from the top left corner, the circle will move again to the middle column.

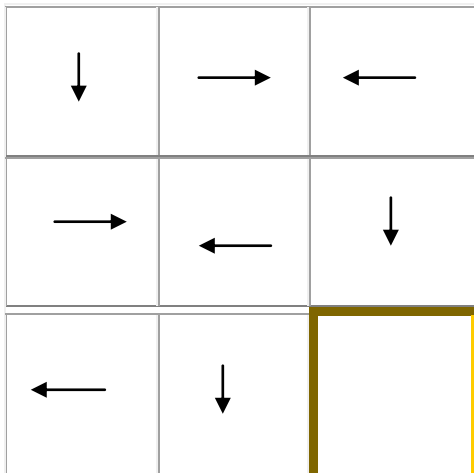
The circle is empty-striped-striped and then empty again. So an empty circle is followed again by a striped circle.

5.2.2 Matrices

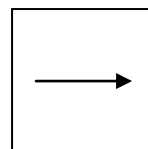
You are shown a large square. The square is divided into nine boxes. There is a figure in each box. Only the bottom right-hand box is empty.

The question is: **What should be in the bottom right-hand box?**

An example:



The answer (bottom right) is:



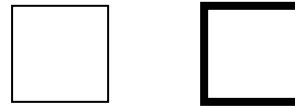
The top and middle rows contain:

- an arrow pointing down
- an arrow pointing to the right
- an arrow pointing to the left

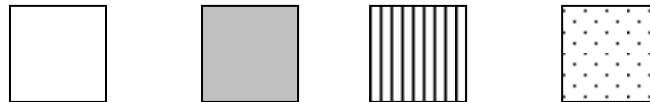
The bottom row does not yet contain an arrow that points to the right.

The figure can also change. Changes can take place in:

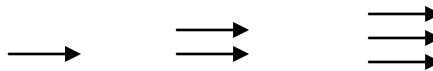
Thickness:



Type of contents:



Number:

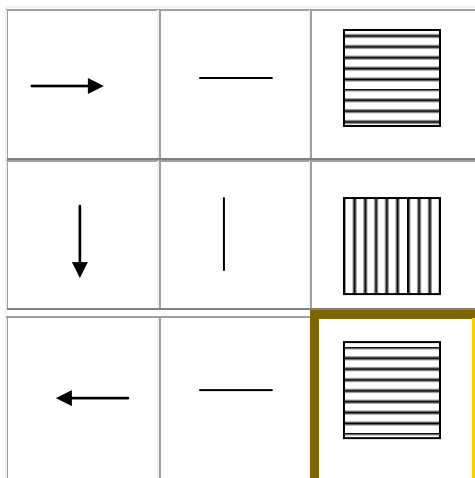


The figure can also turn.

Turning with the same angle each time.

An example

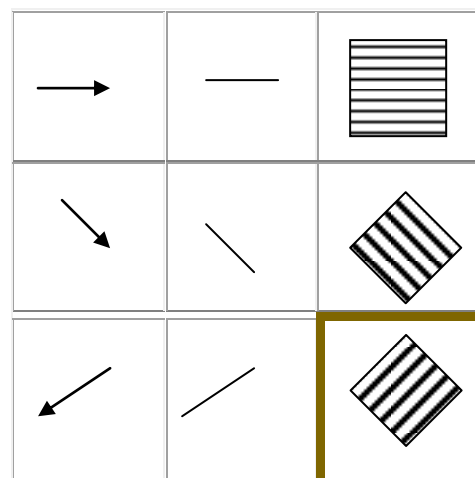
(the figure keeps turning + 90 degrees, from row 1 to 2 and from row 2 to 3):



Turning with a larger or smaller angle.

An example

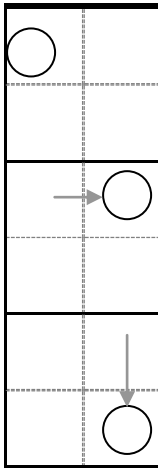
(the figure turns + 45 degrees from row 1 to 2, the figure turns + 90 degrees from row 2 to 3):



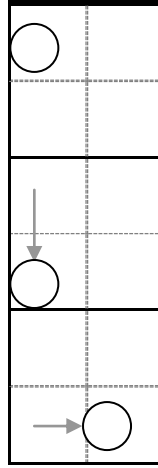
Each box actually consists of four (invisible) boxes. Or: four places for a figure.

A figure can move to a different place in the box, as follows:

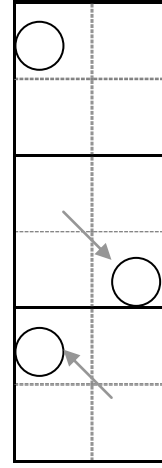
By moving 1 place
((clockwise):



By moving -1 place,
(anti-clockwise):

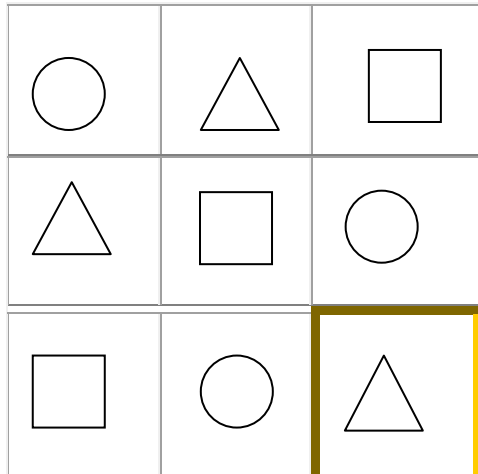


By moving 2 places:

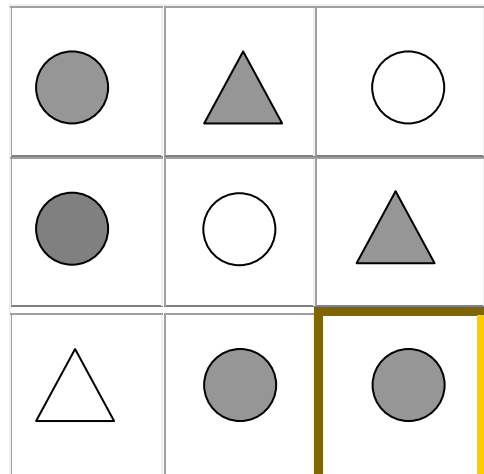


A figure and/or a change can happen once or more times in each row.

*An example of once in each row
(each row contains 1 circle, 1 triangle and 1 square):*



*An example of twice in one row
(each row contains 2 circles and
each row contains 2 dark figures):*



Several things can change in one figure (for example: contents and place). And there are often several figures in one box. Each figure then goes through its own change.

Sample questions

You will now be presented with six sample questions. The answer on each sample question is presented on the next page.

Sample question 1:

Which figure most logically continues this matrix (bottom right)?

↓	→	←
→	←	↓
←	↓	?

↑

→

↓

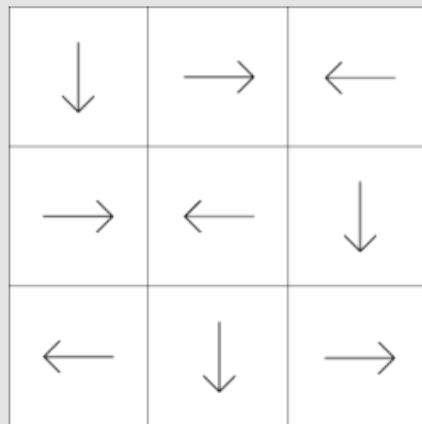
←

△○□△

1³2⁴

▶

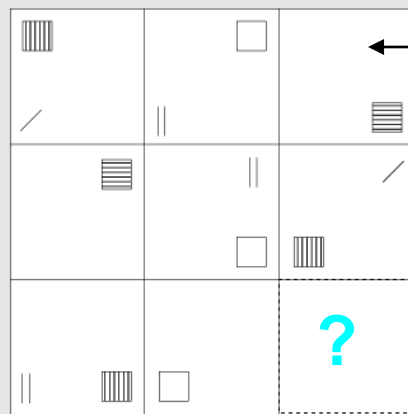
The right answer is:



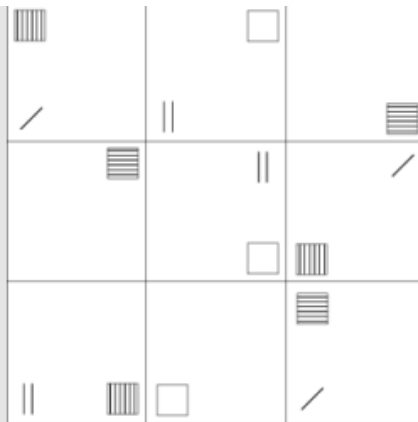
Now each row contains an arrow that points to the left, an arrow that point to the right, and an arrow that points downward.

Sample question 2:

Which figure most logically continues this matrix (bottom right)?



The right answer is:

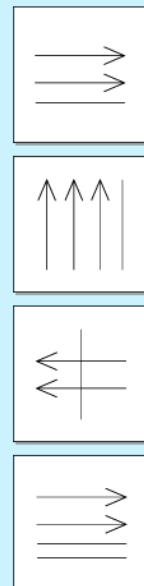
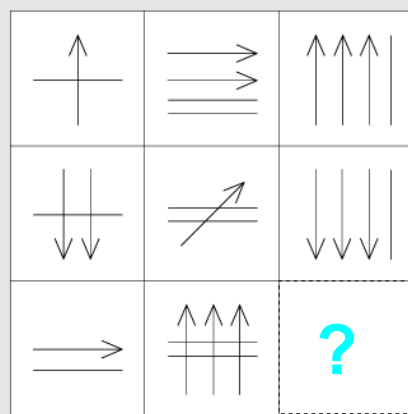


The first and second rows contain: an empty square, a square filled in horizontally and a square filled in vertically. Imagine that every box is divided into four sections. Every square moves to the next section, clockwise.

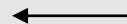
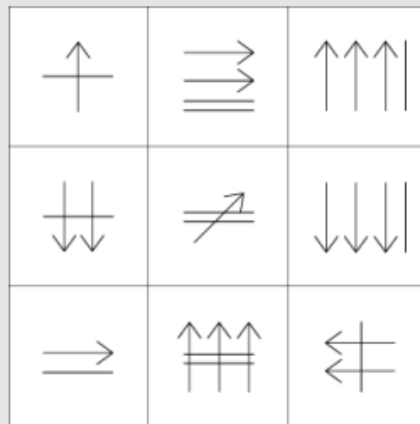
The diagonal line and the two straight lines now all appear three times. The diagonal line and both straight lines now move to the opposite corner. In the second row, the diagonal line is in the upper right corner. The diagonal line now moves to the opposite corner, which is the bottom left corner.

Sample question 3:

Which figure most logically continues this matrix (bottom right)?



The right answer is:



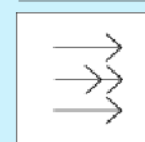
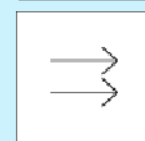
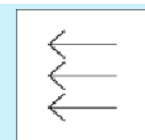
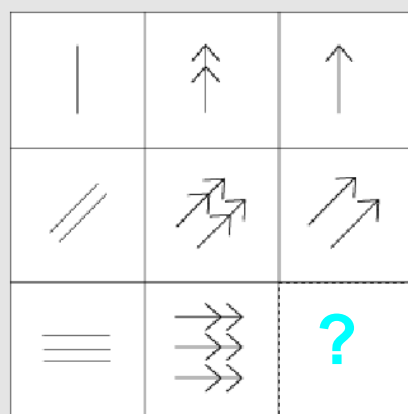
Now in each row there is: one horizontal line, one vertical line and two horizontal lines.

And in every row there are six arrows: one arrow + two arrows + three arrows.

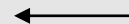
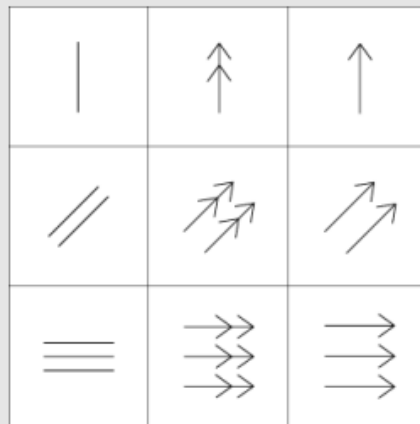
Look from the upper row to the middle row and then to the bottom row: The single arrow turns 45 degrees to the right. The two arrows turn 90 degrees to the right. And the three arrows turn 180 degrees.

Sample question 4:

Which figure most logically continues this matrix (bottom right)?



The right answer is:



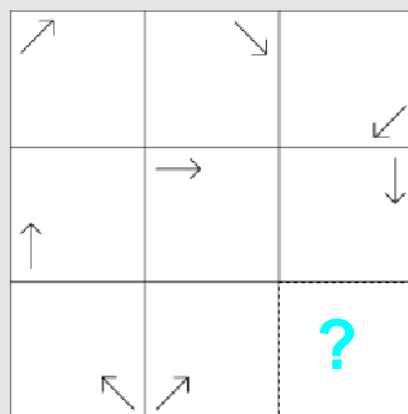
In the top row every shape occurs only once. In the middle row, every shape occurs twice. And in the bottom row every shape occurs three times.

So in the bottom row there should be three arrows in the right corner.

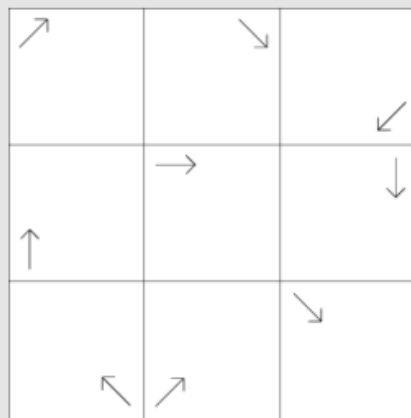
The same type of arrows occur in each column. Therefore, in the bottom row the type of arrows should be identical to the two arrows that appear in the box just above.

Sample question 5:

Which figure most logically continues this matrix (bottom right)?



The right answer is:

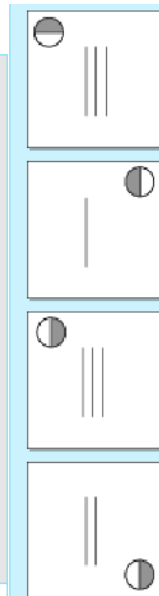
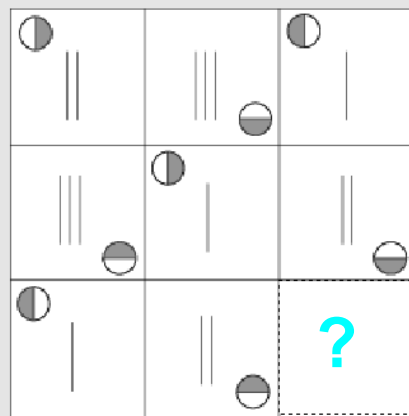


Imagine every box is divided into four sections. For each column, look from top to bottom: The arrow moves back one step, anti-clockwise. And at each step, the arrow turns 45 degrees anti-clockwise.

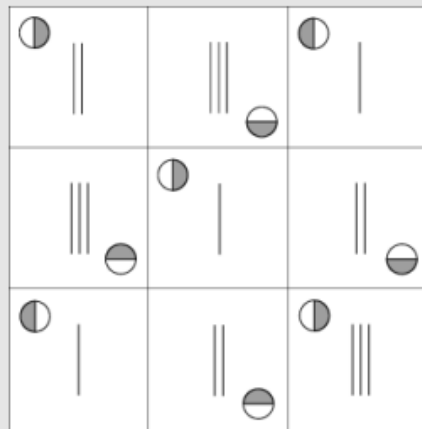
And, for each row, look from left to right. The arrow moves along one more place, clockwise. And at each step, the arrow turns 90 degrees clockwise.

Sample question 6:

Which figure most logically continues this matrix (bottom right)?



The right answer is:



In each row there are six lines: One line + two lines + three lines.

Now imagine each box is divided into four sections. The circle keeps on moving along two steps at a time. And the circle turns 90 degrees.

5.2.3 Series of Numbers

You are shown a row of numbers. Something changes each time, in a logical manner. From left to right. We want you to look closely at what changes. And continue that change. **What is the next number?**

An example: 2 4 6 8

In this example two is added to produce the next number.

The next number will be: $8 + 2 = 10$

Examples of changes are:

Adding (+)

An example:

2 4 6 8

+2 +2 +2

Each time two is added to the previous number.

The next number will be: $8 + 2 = 10$

Subtracting (-)

An example:

15 13 11 9

-2 -2 -2

Each time two is subtracted from the previous number. The next

number will be $9 - 2 = 7$

Multiplying (x)

An example:

3 9 27 81

x^3 x^3 x^3

Each number is multiplied by three.

The next number will be: $81 \times 3 = 243$

Dividing (/)

An example:

81 27 9 3

/3 /3 /3

Each number is divided by three. The next number will be: $3 / 3 = 1$

The change can be the same each time.

An example:

1 3 5 7

+2 +2 +2

The next number will be: $7 + 2 = 9$

The change can also be bigger or smaller each time.

An example:

1 3 7 15

Diagram illustrating the first iteration of the bubble sort algorithm. The initial list is 1, 2, 3, 4, 5. The first two numbers, 1 and 2, are compared. Since 1 is less than 2, they are swapped. The next two numbers, 2 and 3, are compared. Since 2 is less than 3, they are swapped. The next two numbers, 3 and 4, are compared. Since 3 is less than 4, they are swapped. The final two numbers, 4 and 5, are compared. Since 4 is less than 5, they are swapped. The final sorted list is 1, 2, 3, 4, 5.

The next number will be: $15 + (8 \times 2) = 15 + 16 = 31$

One change may take place in a series of numbers. From one number to the next.

An example:

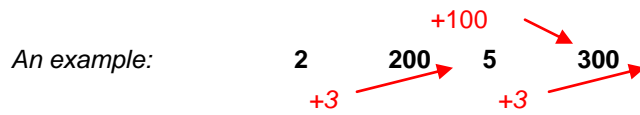
1 4 7 10

+3 +3 +3

The next number will be: $10 + 3 = 13$

Sometimes two changes take place in a series of numbers.

Something changes from the first to the third number. And from the second to the fourth number. So two changes have taken place.



The next number will be: $5 + 3 = 8$

Sample questions

You will now be presented with three sample questions. The answer on each sample question is presented on the next page.

Sample question 1:

Which number most logically continues this series?

1 2 4 8 16

?

20

24

32

36

The right answer is:

1 2 4 8 16 32

The numbers are multiplied each time by 2 (x2).

That means that the last number (16) also has to be multiplied by 2.

$$16 \times 2 = 32$$

Sample question 2:

Which number most logically continues this series?

16 18 29 49

?

69

77

78

98



The right answer is:



First of all 2 is added to the first number.
Then 11 is added to the second number.
And then 20 is added to the third number.

So the number being added is always increased by 9.

So now $20+9 = 29$ has to be added to the last number (49).
And that makes: $49+29 = 78$.

Sample question 3:

Which number most logically continues this series?

55 52 49 46

?

40

43

92

42

The right answer is:

55 52 49 46 43

3 is subtracted from a number each time (-3).

So 3 also has to be subtracted from the last number (46).

$46 - 3 = 43$.

Sample question 4:

Which number most logically continues this series?

11 18 25 32

?

64

39

25

37



$1^3 2^4$



The right answer is:

11 18 25 32 39

7 is added to each number each time (+7).
So 7 also has to be added to the last number (32).
 $32 + 7 = 39$.

Sample question 5:

Which number most logically continues this series?

16 28 38 46

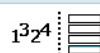
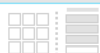
?

51

92

52

84



The right answer is:



First of all, 12 is added to the first number.

Then 10 is added to the second number.

And then 8 is added to the third number.

The number being added therefore becomes smaller each time (-2).

So now $8 - 2 = 6$ has to be added to the last number (46).

And that is: $46 + 6 = 52$.

Sample question 6:

Which number most logically continues this series?

10 20 40 80



160

158

320

80



The right answer is:

10 20 40 80 **160**

The numbers are multiplied by 2 (x2) each time.

The last number (80) therefore has to be multiplied by 2.

$80 \times 2 = 160$.