

Fit for the UAS?

Examples of questions and solutions for the placement test for
a Bachelor degree program (1st semester) at the UAS
Technikum Wien.

The examples shown represent the types of questions in our
placement test and the degree of difficulty increases
progressively.

1. Algebra
2. Functions
3. Logical Inferences
4. Text Comprehension
5. Natural Sciences
6. Status, Perseverance and Stamina*
7. Realistic Expectations*
8. Motivation and Approach to Studying*
9. English

* Chapters 6, 7 and 8 deal, among other things, with the expectations, motivation and personality of the applicants. There are no sample questions for these areas, and preparation for these chapters is not necessary.

1. Algebra

Example 1

Example: $\frac{5}{3} + \frac{7}{6} =$

Move the button over the correct answer and press [save]

$\frac{12}{9}$

$2 + \frac{4}{6}$

$\frac{17}{6}$

no
answer

Example 2

Example: $(-4) \times 5 \times (+2) = -2^3 \times 5$

As $[(-4) \times 5 \times (+2) = -40]$ and as $[-2^3 \times 5 = -40]$ the equation is correct.

Move the button over the correct answer and press [save].

The answers 'correct' and 'false' can be understood as follows:

'correct' means a correct result for all the numbers in the defined range
'false' means that there is at least one number in the defined range, for which the equation is incorrect.

For example the equation

$$x + 2 = x \times 2$$

counts as false, as, although it is correct when

$x = 2$ the equation is incorrect when $x = 1$ for

example

false

undefined

correct

no answer

2. Functions

Example 1

Example: The function $f(x) = 5x^2 - 3$ has for $x = -4$ the value:

Move the button over the correct answer and press [save]

-77

-83

77

no answer

Example 2

Example: How many zeroes does the function $g(z) = 5z^2 - 3$ have?

The function $g(z)$ has two zeroes, specifically for $z = \pm \frac{\sqrt{3}}{\sqrt{5}}$

Move the button over the correct answer and press [save]

1

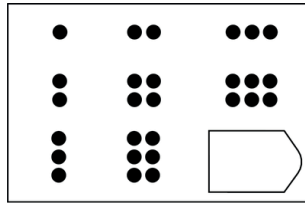
0

2

no answer

3. Logical Inferences

Example 1



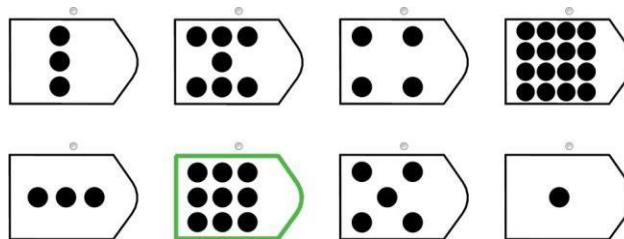
In the example you can see eight given figures and an empty space instead of the ninth figure.

The figures are arranged in three columns and three rows. A certain logical pattern can be clearly seen both within the rows as well as within the columns.

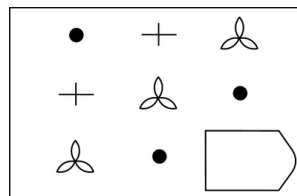
In this example column 2 represents a doubling of column 1 and column 3 a tripling of column 1.

In addition, row 2 is twice row 1 and row 3 is three times row 1.

Move the button over the correct answer and press [save]

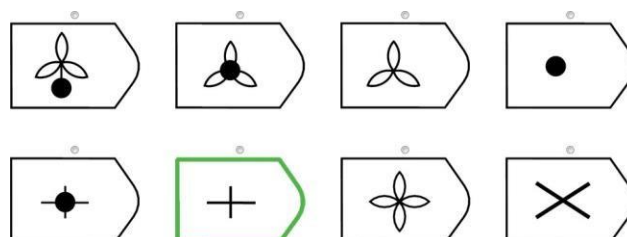


Example 2



In this example a rotation is carried out both between the columns as well as between the lines.

Move the button over the correct answer and press [save]



4. Text Comprehension

Example 1

An industrial robot is a universally usable, automatic, moving machine with several axes, the movements of which are freely programmable in terms of movement sequence and paths or angles and, if necessary, sensor-controlled. Industrial robots can be equipped with grippers, tools or other manufacturing equipment and can perform handling and / or manufacturing tasks. The programming of industrial robots is typically done on site by specially trained people.

A service robot is a moving device that performs services partially or fully automatically. Services are activities that do not serve the direct industrial production of material goods, but the provision of services to people and facilities. Service robots are optimized for a specific activity and do not require any special training to operate; they should be designed so that they can be operated intuitively. Examples of service robots are lawnmowers, vacuum cleaner robots or pool cleaning robots.

Can the following statement be deduced from the text?

Statement 1/2:

The terms industrial robot and service robot refer to the same type of robot.

Yes, statement
can be deduced
from the text

No, statement can
not be deduced
from the text.

No answer

Example 2

An industrial robot is a universally usable, automatic, moving machine with several axes, the movements of which are freely programmable in terms of movement sequence and paths or angles and, if necessary, sensor-controlled. Industrial robots can be equipped with grippers, tools or other manufacturing equipment and can perform handling and / or manufacturing tasks. The programming of industrial robots is typically done on site by specially trained people.

A service robot is a moving device that performs services partially or fully automatically. Services are activities that do not serve the direct industrial production of material goods, but the provision of services to people and facilities. Service robots are optimized for a specific activity and do not require any special training to operate; they should be designed so that they can be operated intuitively. Examples of service robots are lawnmowers, vacuum cleaner robots or pool cleaning robots.

Can the following statement be deduced from the text?

Statement 2/2:

A robot equipped with a welder that welds car bodies is an industrial robot.

Yes, statement
can be deduced
from the text.

No, statement can
not be deduced
from the text.

No answer

5. Natural Sciences

Example 1

Suppose the Earth suddenly and abruptly stopped turning on its own axis. What would happen?

Which statements are correct?

The sun would then only rise and set once a year.

A moon phase would then last the whole year.

Anything that is not firmly attached to the Earth's surface would immediately fly into space.

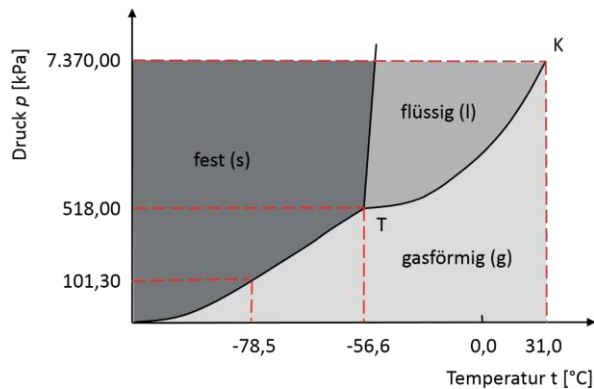
Anything that is not firmly attached to the Earth's surface would slide immediately eastwards.

The sea water would then migrate in the direction of the Poles because centrifugal forces would no longer pull it to the Equator.

The sea water would migrate to the Poles because gravity is greater there.

The sea water would create flooding on the western coastlines.

Example 2



The figure shows the phase diagram of CO₂.

Under standard conditions (0°C and 101.3 kPa), CO₂ is a gas. If no other information on temperature and pressure is given, standard conditions are assumed.

Which of the following statements are correct?

If the temperature drops by 100°C but the pressure remains constant, CO₂ is a solid.

If the pressure increases by 5 MPa but the temperature remains the same, CO₂ is a liquid.

If the temperature drops by 70°C and the pressure increases by 300 kPa, CO₂ is a solid.

If the pressure increases by 417.7 kPa but the temperature remains the same, CO₂ is a liquid.

In order to move from the liquid to the solid aggregate state, at a pressure of 101.3 kPa, the temperature has to be lowered continuously.

9. English

Example 1

For me, the highlight of this past week's science news was the images back from the Curiosity rover, providing geologic evidence that water flowed on Mars.

thrown shot beamed fired no answer

Example. 2

For me, the highlight of this past week's science news was the images back from the Curiosity rover, providing geologic evidence that water flowed on Mars.

conclusive proven final guaranteed no answer