Bundesministerium
Bildung, Wissenschaft
und Forschung

Task Types for the Standardised Competence-Oriented Written School-Leaving Examination in Mathematics (AHS)

as of 12th February 2019

1. Open Tasks

For an open task, the task can be solved in various ways.

Example:

Let g: $3 \cdot x + 5 \cdot y = 15$ be the equation of a line.

Task:

Determine the gradient of the linear function that corresponds to this line.

2. Half-Open Tasks

For a half-open task, the correct answer must be entered into a given equation, function etc.

Example:

The mean of a data set $x_1, x_2, \ldots, x_{24}$ is: $\bar{x} = 115$.

The standard deviation of the data set is $s_x = 12$. The values of a second data set $y_1, y_2, \ldots, y_{24}$ are created by adding 8 to the values of the first data set so that $y_1 = x_1 + 8$, $y_2 = x_2 + 8$ etc.

Task:

Write down the mean $\bar{y}$ and the standard deviation s_y of the second data set.

$\bar{y} =$ _____

$s_y =$ _____

3. Construction Tasks

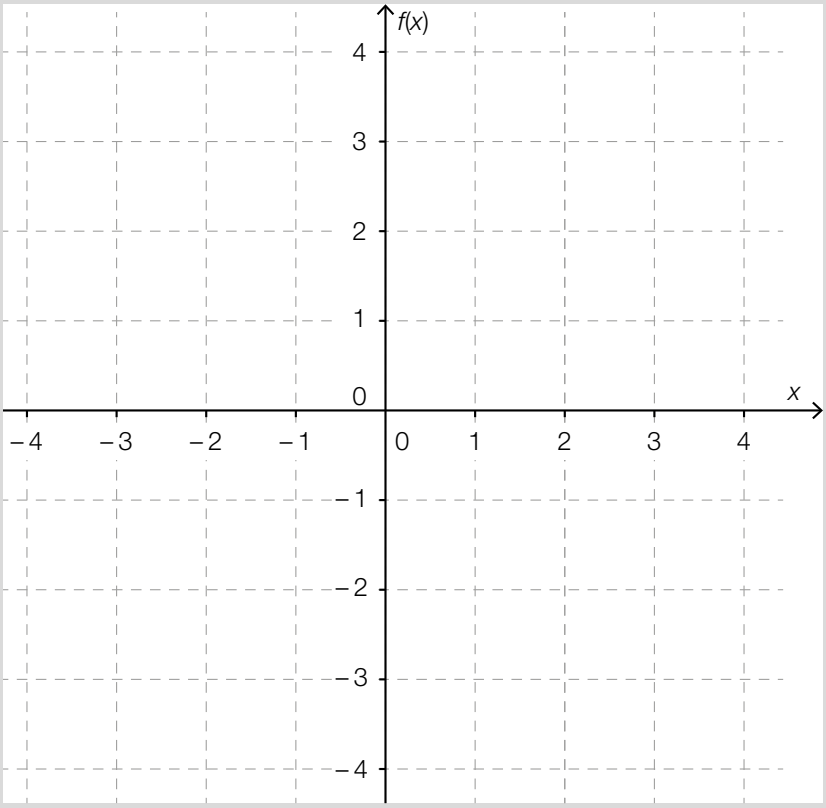
For this task type, an image, a chart or a diagram etc. is given. The task requires the candidate to add graphs, points, vectors or other objects to the image provided.

Example:

The behaviour of the graph of a linear function f where $f(x) = k \cdot x + d$ is determined by the parameters k and d, where $k, d \in \mathbb{R}$.

Task:

In the coordinate system shown below, draw the graph of a linear function f where $f(x) = k \cdot x + d$ with the parameters $k = \frac{2}{3}$ and $d < 0$.



4. Multiple-Choice Tasks

a) 2 out of 5

This task type consists of a question and five possible answers. Tasks of this type have been completed correctly if only the two correct answers have been selected.

Example:

The number $\sqrt{5}$ is given.

Task:

Put a cross next to each of the two correct statements.

The number $\sqrt{5}$ is not in $\mathbb{R}$.	☐
The number $\sqrt{5}$ is in $\mathbb{Z}$ but not in $\mathbb{N}$.	☐
The number $\sqrt{5}$ is irrational.	☐
The number $\sqrt{5}$ is in $\mathbb{Q}$ and in $\mathbb{R}$.	☐
The number $\sqrt{5}$ cannot be represented as a recurring decimal.	☐

b) 1 out of 6

This task type consists of a question and six possible answers. Tasks of this type have been completed correctly if only the correct answer has been selected.

Example:

The number $\sqrt{5}$ is given.

Task:

Put a cross next to the correct statement.

The number $\sqrt{5}$ is not in $\mathbb{R}$.	☐
The number $\sqrt{5}$ is in $\mathbb{Z}$ but not in $\mathbb{N}$.	☐
The number $\sqrt{5}$ is rational.	☐
The number $\sqrt{5}$ is in $\mathbb{Q}$ and in $\mathbb{R}$.	☐
The number $\sqrt{5}$ cannot be represented as a recurring decimal.	☐
The number $\sqrt{5}$ can be written as a fraction.	☐

5. Gap-Fill Tasks

This task type consists of a sentence with two gaps i. e. in the task two sections of the sentence are missing and need to be completed. For each gap there are three possible answers. Tasks of this type have been completed correctly if both gaps have been filled by selecting the correct answer possibility for each gap.

Example:

The number $\sqrt{5}$ is given.

Task:

Complete the following sentence by putting a cross next to one of the given possibilities for each gap so that the sentence becomes a correct statement.

The number $\sqrt{5}$ is a _____ ① _____ because the _____ ② _____.

①	
rational number	☐
irrationale number	☐
natural number	☐

②	
number has a square root symbol	☐
number cannot be written as a fraction	☐
number can be written as a recurring decimal	☐

6. Matching Tasks

This task type consists of six options (e. g. statements, tables, diagrams) that need to be matched to the four answers given. Tasks of this type have been completed correctly if each of the four answers has been correctly matched to one of the options by inserting the correct letters (from A to F) in the spaces provided.

Example:

Decay and growth processes can be described by exponential functions.

Task:

Match each of the four processes described to the corresponding equation of a function (from A to F).

The length of a 1 micrometre long cell doubles each day.	
The length of a 1 micrometre long cell reduces by 15 % per day.	
The length of a 1 micrometre long cell increases by 85 % per day.	
The length of a 1 micrometre long cell decreases by 50 % per day.	

A	$G(t) = 1 \cdot 0.5^t$ (t in days)
B	$G(t) = 1 \cdot 1.85^t$ (t in days)
C	$G(t) = 1 \cdot 0.85^t$ (t in days)
D	$G(t) = 1 \cdot 2^t$ (t in days)
E	$G(t) = 1 \cdot 1.5^t$ (t in days)
F	$G(t) = 1 \cdot 1.2^t$ (t in days)