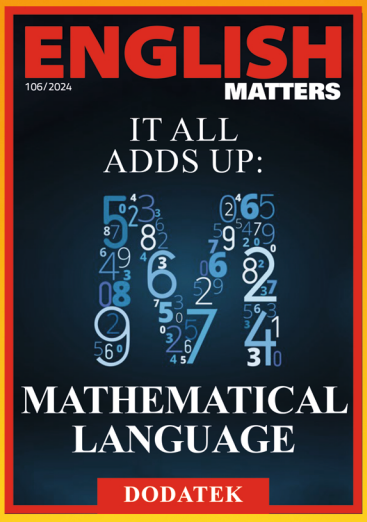
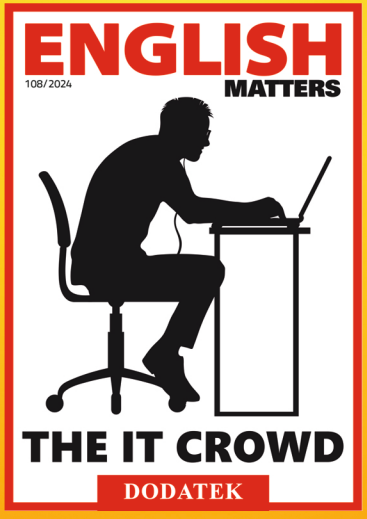
TWOJE DODATKI



EM 106 str. 2



EM 108 str. 22

ENGLISH MATTERS
106/2024

IT ALL ADDS UP:

MATHEMATICAL LANGUAGE

DODATEK

ENGLISH MATTERS

It All Adds Up: Mathematical Language

Mathematics, often referred to as the language of the universe, is a field rich with its own terms expressions, and even slang. Whether you consider yourself to be mathematically minded or not, this booklet looks at mathematical language in detail, providing insights into the terms and expressions that form the backbone of mathematical communication.

From the basic building blocks of numbers and operations to specific concepts like geometry and probability, we'll cover the language that mathematicians, students and enthusiasts use to describe the abstract and concrete phenomena of our world.

it all adds up | to wszystko ma sens
whether | czy
insight into sth | wgląd w coś
backbone | *tu:* podstawa
to cover sth | *tu:* omówić coś
phenomenon | zjawisko

Poradnik językowy jest bezpłatnym dodatkiem do English Matters nr 106/2024.
Opracowanie: Paul Martin
Korekta: Graham Crawford
Colorful Media ul. Lednicka 23, 60-413 Poznań
tel. 61 833 63 28, redakcja@colorfulmedia.pl
Okładka: Sławomir Kinal/freepik.com

Basic Arithmetics

Let's start with the basics.

Arithmetic is the branch of mathematics that deals with numbers and the basic operations applied to them: addition, subtraction, multiplication and division. It also includes the study of more complex concepts like fractions, decimals, primes and percentages.

to deal with sth | zajmować się czymś
addition | dodawanie
substraction | odejmowanie
multiplication | mnożenie
division | dzielenie
to include sth | obejmować coś
fractions | ułamki
decimals | ułamki dziesiętne
primes | liczby pierwsze

Addition (+)

Addition is the process of combining two or more numbers to get a total sum.

- Example: 2 + 3 = 5 (Two plus three equals five)

Subtraction (-)

Subtraction is the operation of taking one number away from another to get the difference.

- Example: 5 - 2 = 3 (Five minus two equals three)

Multiplication (×or *)

Multiplication is the process of adding a number to itself a certain number of times.

- Example: 4 × 2 = 8 (Four times two equals eight)

Division (÷)

Division is the operation of splitting a number into equal parts or groups.

- Terms: Dividend, Divisor, Quotient
- Operation: Divided by
- Symbol: ÷ or /
- Example: 8 ÷ 2 = 4 (Eight divided by two equals four)

to equal | równać się
dividend | dzielna, liczba, która jest dzielona w działaniu matematycznym
divisor | dzielnik, liczba, przez którą dzielimy w działaniu matematycznym
quotient | iloraz, wynik dzielenia

Fractions

Fractions represent parts of a whole. They consist of a numerator (top number) and a denominator (bottom number).

- Term: Fraction, Numerator, Denominator
- Example: 1/2 (One half)

Decimals

Decimals are numbers that have a decimal point to represent a fraction of a whole.

- Term: Decimal, Decimal Point
- Example: 0.5 (Zero point five)

Primes

Prime numbers are numbers greater than 1 that have no divisors other than 1 and themselves.

- Example: 2, 3, 5, 7 (Two, three, five, seven)

Percentages

Percentages are a way of expressing a number as a fraction of 100.

- Term: Percent
- Symbol: %
- Example: 50% (Fifty percent)

Square

The square of a number is the result of multiplying that number by itself.

- Term: Square
- Operation: Squaring
- Symbol: ^{2}
- Example: $4^2 = 16$ (Four squared equals sixteen)

Square Root

The square root of a number is a value that, when multiplied by itself, gives the original number. It is essentially the opposite operation of squaring.

- Term: Square Root
- Operation: Finding the square root
- Symbol: √ (radical)
- Example: √16 = 4 (The square root of sixteen is four)

denominator | mianownik (w matematyce)
decimal point | kropka dziesiętna, przecinek w ułamku dziesiętnym
divisor | dzielnik
square | kwadrat (liczby)
to multiply the number by itself | przemnożyć liczbę przez nią samą
square root | pierwiastek kwadratowy

Basic Algebra

Ah, Algebra. Doesn't everybody love algebra?

Algebra is a branch of mathematics that uses symbols, typically letters, to represent numbers in equations and formulas. It allows us to generalise arithmetic operations and to work with unknown values, called variables.

equation | równanie matematyczne
to allow sb to do sth | pozwalać komuś na z/robienie czegoś
variable | zmienna

Variable

A variable is a symbol, usually a letter, that stands for a number that is not yet known or that can change. In algebra, variables are used to create general expressions that can be solved for specific values.

- Example: In the equation $x+2=5$,
- x is the variable.

Coefficient

A coefficient is a number that is multiplied by a variable in an algebraic expression. It represents how many times to use the variable in a multiplication.

- Example: In the term $3x$
- 3 is the coefficient, indicating that
- x is to be multiplied by 3.

Constant

A constant is a fixed value that does not change. In algebra, constants are numbers on their own, without any variables attached to them.

- Example: In the expression $x+4$
- $x+4$, 4 is the constant.

Expression

An algebraic expression is a mathematical phrase that can include numbers, variables and operation symbols. It does not have an equal sign, so it does not express a complete thought like an equation does:

- Example:
- $2x+3$ is an algebraic expression.

Equation

An equation is a statement that two expressions are equal, indicated by the equal sign (=). Solving an equation means finding the value of the variable that makes the statement true.

- Example:
- $x-1=7$ is an equation.

Term

A term is a single mathematical expression that can be a number, a variable, or numbers and variables multiplied together. Terms are separated by addition (+) or subtraction (-) signs in an expression.

- Example: In the expression $4x+5$
- $4x$ and 5 are both terms.

Polynomial

A polynomial is an expression that consists of multiple terms. It can be as simple as a monomial (one term), a binomial (two terms), or a trinomial (three terms), or it can have many terms.

- Example:
- $x2+3x+2$ is a polynomial.

Factor

To factor an expression means to write it as a product of its factors. Factors are numbers or expressions that are multiplied together to get the original expression.

- Example: Factoring $x2-9$ would give $(x+3)(x - 3)$

Solution

The solution to an equation is the value of the variable that makes the equation true. It is the result of solving the equation.

- Example: The solution to $x+3=10$ is $x=7$

Inequality

An inequality is like an equation, but instead of an equal sign, it uses inequality symbols to show that one expression is greater than (>), less than (<), greater than or equal to (≥), or less than or equal to (≤) another.

- Example: $x+5>10$ is an inequality.

to stand for sth | oznaczać coś
solved | rozwiązany
coefficient | współczynnik
constant | stała
fixed value | ustalona wartość
without sth | bez czegoś
attached to sth | związany z czymś
term | termin
polynomial | wielomian, funkcja matematyczna
monomial | jednomian
binomial | dwumian
trinomial | trójmian, suma trzech jednomianów
factor | czynnik
inequality | nierówność
instead of sth | zamiast czegoś

Charts and Graphs

Charts and graphs are essential tools for visualising data, making complex information easier to understand at a glance. They are used across various fields, from business and economics to science and education, to communicate trends, patterns and relationships within data sets.

chart | wykres
at a glance | na pierwszy rzut oka
pattern | wzorzec
within data sets | w obrębie zbiorów danych

Types of Charts and Graphs

1. Line Graphs

   Line graphs are used to display data points over a continuous interval or time span. They are particularly useful for showing trends in data at equal intervals, such as months, years or decades. In a line graph, data points are plotted and connected by straight lines, making it easy to see whether the data is increasing, decreasing, or remaining constant over time.

2. Bar Charts

   Bar charts are used to compare different groups or to track changes over time. They consist of rectangular bars, where the length of the bar represents the value of the data. Bar charts can be oriented horizontally or vertically, and are particularly useful for comparing data across categories.

3. Pie Charts

   Pie charts are circular charts divided into sectors or 'slices,' where each slice represents a proportion of the whole. They are best used when you want to show the relative sizes of parts to the whole, such as the percentage distribution of data across different categories.

4. Histograms

   Histograms are similar to bar charts but are used specifically for showing the frequency distribution of numerical data. They help identify the central tendency, dispersion and shape of the data's distribution. Unlike bar charts, the bars in a histogram touch each other, indicating the continuous nature of the data.

5. Scatter Plots

   Scatter plots typically display values for two variables for a set of data. The data is displayed as a collection of points, each having the value of one variable determining the position on the horizontal axis and the value of the other variable determining the position on the vertical axis. Scatter plots are used to observe relationships between variables.

line graph | wykres liniowy
to display sth | pokazać coś
at equal intervals | w równych przedziałach (np. czasu)
plotted | nakreślony
connected by sth | połączony czymś
to increase | wzrastać
to descrease | maleć
to remain constant | pozostać na stałym poziomie
bar chart | wykres słupkowy
to compare sth | porównać coś
rectangular | prostokątny
vertically | pionowo
pie chart | diagram kołowy
divided into sth | podzielony na coś
slice | plasterek, kawałek
histogram | histogram
numerical data | dane numeryczne, liczbowe
dispersion | rozproszenie
unlike X | inaczej niż X
scatter plot | wykres punktowy (rozrzutu)
axis | oś
vertical | pionowy

Interpreting Charts and Graphs

To effectively interpret charts and graphs, consider the following steps:

- **Identify the Type of Chart or Graph**: Recognising the type of chart or graph is the first step in understanding the data presented.
- **Understand the Axes**: Look at the x-axis (horizontal) and y-axis (vertical) to understand what variables are being measured.
- **Read the Title and Labels**: The title provides context about the data, while labels on the axes and legends explain what the variables and symbols represent.
- **Analyse the Data**: Look for trends, patterns or outliers in the data. For example, in a line graph, is there an upward or downward trend? In a pie chart, which category is the largest or smallest?
- **Draw Conclusions:** Based on your analysis, what conclusions can you draw from the data? Remember, charts and graphs summarise data, but interpretation depends on the context.

to recognise sth | rozpoznać coś
measured | z/mierzony
label | etykieta
to look for sth | szukać czegoś
outlier | liczba która jest najniższa lub najwyższa spośród liczb w danym zbiorze
upward | zwyżkujący
to depend on sth | zależeć od czegoś

Geometry and Measurement

Geometry and measurement are fundamental branches of mathematics that deal with the properties and relations of points, lines, angles, surfaces, and solids. Geometrists explore the shapes and sizes of different objects, understand their positions in space and learn how to measure them accurately.

properties | właściwości
angle | kąt
surface | powierzchnia
solid | *tu:* bryła

Basic Geometric Shapes and Definitions

- Point: A location in space without size or dimension.
- Line: A collection of points extending infinitely in two directions. It has length but no thickness.
- Plane: A flat surface that extends infinitely in all directions, with length and width but no thickness.
- Angle: Formed by two rays (the sides of the angle) sharing a common endpoint (the vertex). Angles are measured in degrees.

Types of Angles

- Acute Angle: An angle less than 90 degrees.
- Right Angle: An angle of exactly 90 degrees.
- Obtuse Angle: An angle greater than 90 degrees but less than 180 degrees.
- Straight Angle: An angle of exactly 180.
- Reflex Angle - An angle greater than 180 degrees and less than 360 degrees.

Polygons

Polygons are closed figures with three or more straight sides. Based on the number of sides, polygons have specific names:

- Triangle: A three-sided polygon.
- Quadrilateral: A four-sided polygon, with subtypes including squares, rectangles and parallelograms.
- Pentagon: A five-sided polygon.
- Hexagon: A six-sided polygon.
- Heptagon: A seven-sided polygon.
- Octagon: An eight-sided polygon.

Circles

A circle is a shape consisting of all points in a plane that are a given distance from a centre point. Key terms related to circles include:

- Radius: A line segment from the centre of the circle to any point on the circle.
- Diameter: A line segment that passes through the centre of the circle, connecting two points on the circle. The diameter is twice the length of the radius.
- Circumference: The perimeter or boundary line of a circle.
- Area: The space enclosed by the circle's circumference.

to extend | wydłużać się
infinitely | w nieskończoność
thickness | grubość
width | szerokość
ray | promień
vertex | wierzchołek
to be measured in degrees | być mierzonym w stopniach
acute angle | kąt ostry
right angle | kąt prosty
obtuse angle | kąt rozwarty
straight angle | kąt półpełny
reflex angle | kąt wklęsły
polygon | wielobok, wielokąt
triangle | trójkąt
quadrilateral | czworokąt
pentagon | pięciokąt
hexagon | sześciokąt
heptagon | siedmiokąt
octagon | ośmiokąt
radius | promień
diameter | średnica
circumference | obwód
area | obszar

Measurement in Geometry

Measurement in geometry involves determining the length, area and volume of various shapes and objects.

Length

- Measured in units such as millimetres (mm), centimetres (cm), metres (m), and kilometres (km) or inches (in), feet (ft), and miles (mi).
- Perimeter: The total length of the boundary of a polygon.

Area

- The amount of space enclosed within a shape.
- Measured in square units, such as square centimetres (cm^2), square meters (m^2), or square kilometres (km^2).

Volume

- The amount of space occupied by a three-dimensional object.
- Measured in cubic units, such as cubic centimetres (cm^3), cubic metres (m^3), or litres (L)

Geometric Transformations

- Translation: Moving a shape without rotating or flipping it.
- Rotation: Turning a shape around a fixed point.
- Reflection: Flipping a shape over a line to produce a mirror image.
- Scaling: Increasing or decreasing the size of a shape while maintaining its proportions.

inch | cal
feet | stopa
boundary | granica
amount | ilość
enclosed within a shape | ograniczony kształtem
square unit | jednostka kwadratowa
three-dimensional | trójwymiarowy
cubic unit | jednostka kubiczna
to flip sth | przerzucać, przewracać coś

Basic Probability and Statistics

Probability and statistics are branches of mathematics that help us understand and interpret data. While probability deals with predicting the likelihood of future events, statistics involves the analysis of the frequency of past events. Both are important for making decisions based on data.

to predict sth | przewidywać coś
likelihood | prawdopodobieństwo

Mean, Median and Mode

- Mean (Average)

  The mean, often referred to as the average, is one of the most commonly used measures to summarise data. To calculate the mean, you add up all the numbers in a set of data and then divide by the count of numbers.

  For example, in the data set 2, 3, 5, 7 and 11, you add those numbers together to get 28, then divide by 5 (because there are five numbers in the data set). The mean is therefore: 5.6

- Median

  The median is the middle value in a data set that has been arranged in ascending order. If there is an even number of observations, the median is the average of the two middle numbers.

  Finding the Median:

  1. Arrange the data in ascending order.
  2. If the number of observations is odd, the median is the middle number.
  3. If the number of observations is even, the median is the average of the two middle numbers.

  Examples:

  1. For the data set 1, 3, 3, 6, 7, 8, 9, the median is 6.
  2. For the data set 1, 2, 3, 4, the median is 2 + 3 / 2 = 2.5

- Mode

  The mode is the value that appears most frequently in a data set. A data set may have one mode, more than one mode, or no mode at all if no number repeats.

  Examples:

  1. For the data set 1, 2, 2, 3, 4, the mode is 2.
  2. For the data set 1, 1, 2, 3, 3, 4, 4, there are three modes: 1, 3, and 4.

mean | *tu:* średnia
median | mediana, wartość pośrednia
mode | *tu:* dominanta, wartość modalna
therefore | dlatego
in ascending order | rosnąco
to appear | pojawiać się

Basic Probability Concepts

Probability measures the likelihood of an event to occur. It is calculated by dividing the number of favourable outcomes by the total number of possible outcomes.

Formula:

Formula:

$$P(E) = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}}$$

$$P(H) = \frac{1}{2}$$

Example:

When flipping a coin, the probability of getting heads (H) is 1/2 because there are 2 possible outcomes (heads or tails), and only one of them is favourable (heads).

favourable | sprzyjający
outcome | wynik, rezultat
to flip a coin | rzucać monetą
heads | orzeł, awers monety
tails | reszka, rewers monety

Data Analysis

Variance and standard deviation are two important ideas in statistics that help us understand how spread out or close together data points are in a set.

Imagine you're looking at the scores of a class on a test. These concepts can tell us if all students scored similarly (close together) or if their scores were all over the place (spread out).

Variance tells us on average how much each score differs from the average score of the whole class. If variance is high, it means students' scores were very different from each other. If it's low, most students scored around the same.

To find variance, we:

- Calculate the average score of the class.
- See how far away each student's score is from this average, square these differences (which makes them positive), and then find the average of these squared differences.

Standard Deviation is just the square root of the variance. It also tells us how spread out the scores are, but in the same units as the scores themselves. So, if the standard deviation is small, it means most students scored around the class average. If it's large, the scores are more spread out.

To get the standard deviation, we simply take the square root of the variance.

These two measures help us understand the consistency and reliability of data. For example, in a company, they can show if sales are steady or fluctuate a lot.

variance and standard deviation | wariancja i standardowe odchylenie
to spread out | rozkładać się
to close together | być blisko siebie
scores | punktacja
to differ from sth | różnić się od czegoś
consistency | *tu:* spójność, zgodność
reliability | *tu:* rzetelność
to fluctuate | wahać się, zmieniać się

ENGLISH MATTERS

108/2024

THE IT CROWD

DODATEK

ENGLISH MATTERS

Isn’t it amazing how much our lives have changed since the release of the Altair 8800 in 1974, the world’s first personal computer? We sometimes take that shift for granted, but it has been seismic.

Now, with millions of us working in the IT services industry and many more relying on some form of tech at work and home, being fluent in the language of IT is crucial.

In this guide, Paul Martin codes in the terms you need to know if you want to join the IT crowd.

to rely on sth | polegać na czymś

Poradnik językowy jest bezpłatnym dodatkiem do English Matters nr 108/2024.
Opracowanie: Paul Martin
Korekta: Graham Crawford
Colorful Media ul. Lednicka 23, 60-413 Poznań
tel. 61 833 63 28, redakcja@colorfulmedia.pl
Okładka: Michał Sobański/depositphotos

The Classics

You cannot beat the old-school. The terms listed in the glossary are now very familiar essential IT terms, but at one time they were new words (neologisms) brought to life during the early digital revolution.

Algorithm	In the IT sense, a set of rules or instructions given to a computer to help it perform a specific task.
Backup	A copy of data stored separately from the original to protect against data loss.
Bandwidth	The amount of data that can be transmitted over an internet connection in a given amount of time.
Bit	The most basic unit of information in computing, representing a binary state of 0 or 1.
Bug	An error or flaw in software that causes it to produce an incorrect or unexpected result.
Byte	A group of eight bits, often used to represent a single character of text.
Compiler	A program that translates code written in a high-level programming language into machine code that a computer's processor can execute.
Cookie	A small piece of data stored on the user's computer by a web browser while browsing a website, used to remember information about the user.

digital | cyfrowy
to perform sth | wykonywać coś
stored | przechowywany
data loss | utrata danych
in a given amount of time | w danej ilości czasu
flaw | usterka
to execute sth | wykonywać coś
web browser | przeglądarka internetowa

Crash	An unexpected failure of a software program or system, causing it to stop functioning properly.
Database	An organised collection of data that can be easily accessed, managed and updated.
Debug	The process of finding and fixing bugs or errors in software.
Download	The act of transferring data from a remote system to a local system.
Firewall	A security system that controls incoming and outgoing network traffic based on predetermined security rules.
Firmware	Software that is permanently programmed into a hardware device.
Glitch	A small and temporary fault in a system, often causing minor problems.
Hardware	The physical components of a computer system, such as the processor, memory and storage devices.
Log	A record of events or processes that have occurred within a system, often used for monitoring and troubleshooting.

failure | usterka
updated | z/aktualizowany
to fix sth | naprawiać coś
bug | *tu:* błąd w kodzie programu
remote | zdalny
incoming | przychodzący
outgoing | wychodzący
firmware | mikrooprogramowanie, oprogramowanie wbudowane
temporary | czasowy
minor | mniejszy
storage device | urządzenie do przechowywania
troubleshooting | diagnozowanie i usuwanie usterek

Mainframe	A large, powerful computer used primarily by large organisations for critical applications, bulk data processing and enterprise resource planning.
Memory	The component of a computer that stores data and programs temporarily while they are being used.
Modem	A device that passes on signals for data transmission over telephone lines or other communication media.
Operating System (OS)	Software that manages computer hardware and provides common services for computer programs.
Personal Computer (PC)	A general-purpose computer designed for individual use.
Pixel	The smallest unit of a digital image or display, representing a single point in a graphic.
Script	A set of commands or instructions written in a scripting language to automate tasks or processes.
Server	A computer or system that provides resources, data, services, or programs to other computers, known as clients, over a network.
Software	Programs and operating systems that run on computer hardware and perform various tasks.
Spam	Unsolicited and often irrelevant or inappropriate messages sent over the internet, typically to a large number of users.

bulk data processing | przetwarzanie dużych zbiorów danych
enterprise resource planning | planowanie zasobów przedsiębiorstwa
to pass on sth | przekazywać coś
unsolicited | niezamawiany, niepożądany

Terminal	A device or program that allows a user to communicate with a computer, typically via a keyboard and display screen.
User Interface (UI)	The means by which a user interacts with a computer, software or application.
Workstation	A high-performance computer designed for technical or scientific applications.

to allow sb to do sth | pozwolić komuś na z/robienie czegoś

via sth | poprzez coś

means | środek, środki, sposób

Trending

IT is an area that evolves rapidly, with people working in the field of software development continuously having to school up on the latest technologies and developments in order to remain relevant. Here are some of the terms that have become common over the past decade or so.

5G	The fifth generation of mobile network technology, offering faster speeds and more reliable connections for mobile devices.
Artificial Intelligence (AI)	The simulation of human intelligence in machines that are programmed to think and learn.
Augmented Reality (AR)	An interactive experience where real-world environments are enhanced with computer-generated information.
Big Data	Large and complex data sets that require advanced methods to store, process and analyse.
Blockchain	A decentralised ledger of all transactions across a network, used primarily in crypto-currency.
Cloud Computing	Storing and accessing data and programs over the internet instead of on local hardware.

reliable | na którym można polegać
augmented reality | rzeczywistość rozszerzona
to be enhanced with sth | być ulepszonym o coś
data set | zestaw danych
to require sth | wymagać czegoś
blockchain | łańcuch bloków, technologia łańcucha bloków
ledger | rejestr
cryptocurrency | kryptowaluta
cloud computing | chmura obliczeniowa, przetwarzanie w chmurze
instead of sth | zamiast czegoś

Cryptocurrency	A digital or virtual currency that uses cryptography for security and operates independently of a central bank.
Cybersecurity	The practice of protecting systems, networks and programs from digital attacks.
Deep Learning	A subset of machine learning (see below) involving neural networks with many layers that analyse various factors of data.
Internet of Things (IoT)	The network of physical objects embedded with sensors and software to connect and exchange data with other devices over the internet.
Machine Learning	A subset of AI that involves the use of algorithms and statistical models to enable computers to learn from and make predictions or decisions based on data.
Quantum Computing	A type of computing that takes advantage of quantum phenomena to perform operations on data at speeds and scales unattainable by classical computers.

independently of sth | niezależnie od czegoś
subset | podzbiór
neural | neuronowy
layer | warstwa
embedded with sth | wyposażony, zaopatrzony w coś
to exchange sth | wymieniać się czymś
to enable sth to do sth | umożliwiać czemuś z/robienie czegoś
quantum computing | komputer kwantowy
to take adavantage of sth | korzystać z czegoś
phenomenon | zjawisko
unattainable | nieosiągalny

Ransomware	A type of malicious software designed to block access to a computer system until a sum of money is paid.
Virtual Reality (VR)	A simulated experience that can be similar to or completely different from the real world, often used for gaming or training.
Virtualisation	Creating a virtual version of something, such as a server or storage device, to improve efficiency and scalability.
Wearable Technology	Electronic devices worn on the body that often connect to other devices or networks to share data.

ransomware | oprogramowanie szantażujące, oprogramowanie wymuszające okup
malicious | złośliwy
to improve sth | polepszać coś
wearable technology | odzież lub akcesoria zawierające zaawansowane technologicznie gadżety
to share sth | dzielić coś, dzielić się czymś

Old and New **Fill the gaps with the correct combination of words.**	
1. The company's new _____ system helps protect against _____ attacks by monitoring and controlling incoming and outgoing network traffic.	A. Virtualisation, Servers
2. With the rise of _____, managing a large _____ efficiently has become more critical than ever.	B. Internet of Things (IoT), Hardware
3. After discovering a _____ in the software, the development team had to _____ the code to find and fix the issue.	C. Firewall, Ransomware
4. Implementing _____ technology has revolutionised how our _____ operate, allowing for more efficient data processing and storage.	D. Big Data, Database
5. The integration of the _____ into everyday _____ components has led to smarter and more connected devices.	E. Bug, Debug
6. By deploying _____ techniques, the _____ can now predict user behaviour and optimise performance in real-time.	F. Deep Learning, Operating System (OS)

1. C, 2. D, 3. E, 4. A, 5. B, 6. F

Crossover

Some IT words have crossed over into common language, taking on an idiomatic meaning, often in business contexts:

Bandwidth

When used idiomatically, this word refers to a person's ability to handle information or tasks. People often use it when they feel overwhelmed.

- "Can you help me with this new project"?
- "Sorry, I just don't have the bandwidth to take on anything else right now".

Hardware

You can use the word hardware to refer to any physical tools or equipment needed to complete a task.

- "Do we have everything we need for the presentation?"
- "Yes, all the hardware is set up and ready."

Download

This word refers to acquiring information or getting up to speed on a topic.

- "What's the latest on the project?"
- "Give me a moment to download all the details and I'll fill you in."

to cross over into sth | przeniknąć do czegoś
to handle sth | zajmować się czymś, radzić sobie z czymś
to feel overwhelmed | czuć się przytłoczonym
byte-sized | skrótowy
physical | materialny; fizyczny
to fill s-b in | wprowadzić kogoś (w coś)

Working in IT

If you have a career in IT, or are seeking one, you'll want to be familiar with some of the following ideas and terms.

Agile Methodologies

- Agile is a way to manage projects by breaking them into small pieces and working on them in short cycles. Teams work together closely and adjust as needed to improve and deliver working software quickly.
- Scrum is a method within Agile. It uses short work cycles called sprints (usually two weeks) where teams focus on specific tasks. Important roles include the Scrum Master (team coach), Product Owner (task manager), and Development Team (task doers). Regular meetings include planning sessions, daily check-ins, reviews, and feedback sessions.
- Kanban is an Agile method that uses a visual board to manage tasks. It helps teams see what needs to be done, what is in progress, and what is finished, making it easier to spot and fix any delays.

Project Management and Development Processes

- Waterfall: A straightforward approach to software development where each step is completed one after another in a specific order. The process includes gathering requirements, designing, building, testing, deploying and maintaining the software. You can't move to the next step until the current one is finished, making it less adaptable to changes compared to Agile methods.
- DevOps: DevOps is a way of working that blends software development and IT operations to make software development faster and better. It focuses on continuous improvements and quick updates.

familiar with sth | zaznajomiony z czymś
to adjust | dostosowywać się
within X | w obrębie X
to focus on sth | skupiać się na czymś
to include sb | obejmować kogoś
straightforward | bezpośredni; jasny
approach to sth | podejście do czegoś
to blend sth | mieszać coś
improvement | polepszenie

- Continuous Integration (CI): CI is when developers frequently merge their code changes into a shared project. Automated tests run each time to make sure nothing is broken.
- Continuous Delivery (CD): CD builds on CI by automatically sending new code to testing or live environments after it's built. This means the software is always ready to be released.

IT Infrastructure and Operations

- Cloud Computing: This is like renting computers and storage space over the internet instead of buying your own. You can use these online services for various tasks like running software, storing files or managing databases. Examples include Google Drive for storage and Microsoft Office 365 for software.
- Virtualisation: Imagine you have one physical computer, but you split it into several smaller virtual computers that can do different tasks independently. This helps in using the computer's power more efficiently and flexibly.
- Containerisation: Think of this as putting a program and everything it needs to run into a box. This box can then be moved around and run on any computer without worrying about compatibility issues.

to merge sth into sth | łączyć coś, scalać coś
released | opublikowany, wypuszczony na rynek/w obieg
instead of sth | zamiast czegoś
to split sth into sth | podzielić coś na coś
efficiently | skutecznie
flexibly | elastycznie

Job Seekers
Fill the gaps from these CV fragments.

Agile Methodologies

A. Scrum	B. Kanban	C. Scrum Master	D. Product Owner

Candidate: ”I have extensive experience with Agile methodologies, particularly _____ [1]. In my last role, I was a _____ [2], where I facilitated daily stand-ups, sprint planning, and retrospectives. I also worked closely with the _____ [3] to ensure our backlog was well-groomed and prioritised. I have never worked with _____ [4] but I am attracted by its visual element”

Answers 1. A, 2. C, 3. D, 4. B

Project Management and Development Processes

A. Agile	B. Continuous Integration (CI)	C. Continuous Delivery (CD)	D. Waterfall

Candidate: “While _____ [1] is great for projects with well-defined requirements, I’ve found that _____ [2] allows for more flexibility and adaptability. I also implemented _____ [3] and then _____ [4] practices to streamline our development and deployment processes.”

Answers: 1. D, 2. A, 3. B, 4. C

IT Infrastructure and Operations

A. Containerisation	B. Virtualisation	C. Cloud Computing

Candidate: ”My expertise includes working with _____ [1] to provide scalable and flexible computing resources for our projects. I’ve also utilised _____ [2] to maximise the efficiency of our hardware, and implemented _____ [3] to ensure our applications are portable and consistent across different environments.”

Answers: 1. C, 2. B, 3. A

IT Actions **Familiarise yourself with some of these key IT verbs by pairing them with a noun and a task description.**	
Pair the action with the task	
1. Install Software	A. Convert source code into executable programs.
2. Monitor Server	B. Apply the latest patches to critical software.
3. Backup Files	C. Apply protocols to secure sensitive data.
4. Compile Program	D. Create duplicates of important files to prevent data loss.
5. Access Database	E. Set up the required program on the designated systems.
6. Debug Code	F. Retrieve and manage stored information as needed.
7. Update System	G. Continuously check performance and address any issues.
8. Encrypt Data	H. Identify and fix errors to improve functionality.
Answers: 1. E, 2. G, 3. D, 4. A, 5. F, 6. H, 7. B, 8. C	