

Ada and the Engine – Reference Glossary

ACT I

- **Diaphanous** – light, delicate, or translucent
- **Geometric progression** – (geometric sequence) a sequence in which each term after the first is found by multiplying the previous one by a non-zero number called the “common ratio”
 - **Example:** 2, 6, 18, 24; all numbers with a common ratio of 3.
 - **General form:** a , ar , ar^2 , ar^3 , ar^4
- **Factorization of Primes** – the dividing, or breaking down, of prime numbers until the lowest prime number is reached
 - **Example:** 48; breaks down into 8×6 ; breaks down into 4×2 and 3×2 ; breaks down into 2, 2, 2, 3 and 2
- **Harlot** – prostitute, or a promiscuous woman
- **Ne’erdowell** – “never do well” – someone who fails often, or who causes a lot of trouble
- **Menabrea** – an Italian military engineer and mathematician who served as Prime Minister of Italy. Ada Lovelace translated notes and articles he wrote about the Analytical Engine.
- **Modus operandi** – a particular method or process
- **Deference** – humble submission; respect
- **Calculus series** – an anonymous series of books analyzing and discussing the magnitude and possibilities of the formulas of calculus
- **Lucasian Chair of Mathematics** – a mathematics professorship at the University of Cambridge. (One of the most prestigious academic positions in the world!) Officially established by King Charles II in 1664.
- **Tome** – a large, scholarly book
- **Saloniste** – one who attends salons
- **Difference Engine** – the automatic mechanical calculator designed to calculate and tabulate polynomial functions, designed by Charles Babbage in 1819
- **Polynomial** – a mathematical expression consisting of more than two algebraic terms
 - **Example:** $5xy - 3x + 5y - 2$
- **The Method of Finite Differences** – now known as the “Finite Difference Methods”, the oldest and most common method for solving differential equations
- **Computation** – the action of a mathematical equation
- **Reimann** – German mathematician who created *elliptic geometry*. His contributions to analysis, number theory and differential geometry paved the road for Albert Einstein’s theory of relativity
- **Besmirch** – to damage the reputation of

- ***Dissertation to the Mechanism of the Heavens*** – a book by Mary Somerville on *celestial mechanics* (the combination of physics and the astronomy of stars and planets, in order to produce data), published in 1831.
- **Elucidate** – to make something clear, or explain
- **Abacus** – a small frame with rows of wires upon which beads are slid, used to calculate
- **Luddite** – a person opposed to the growth of industrialization or technology
- **Automaton** – a moving mechanical device made in imitation of a human being
- **Syphilitic** – to have *syphilis* (the disease was spreading wildly throughout Europe right around this time; mid-1800s through the early 1900s)
- **Fodder** – food; a treat used to lure animals
- **beyond the pale** – a phrase meaning “outside the bounds of acceptable behavior”
- **effervescence** – a source of an enthusiasm or vivacity; in chemistry, the bubbles or fizz in a liquid
- **Lardner’s Trigonometry** – a compilation of papers and records on new theories and formulae in trigonometry, written by Dionysus Lardner (Irish professor of natural philosophy and astronomy at University College in Dublin)
- **Logarithm** - a quantity representing the power to which a fixed number (the base) must be raised to produce a given number
 - **Example:** $10^2 = 100$, or $\log 100 = 2$
- **Jacquard Loom** – a machine fitted to a power loom that simplifies the process of manufacturing textiles, invented by Joseph Marie Jacquard in 1804
- **Punch card** - a card that functions according to a code, used to control a machine. Often used in voting machines and programming/entering data into computers.
- **Epistolary** – the form of letter-writing
- **Penchant** – a strong liking for something
- **Nuptials** – a wedding
- **Cubic equation** – an equation containing a cubic polynomial
 - **Example:** $a_3x^3 + a_2x^2 + a_1x + a_0 = 0$
- **Biquadratic equation** – a quartic equation containing no odd powers
 - **Example:** $z^4 + a_2 z^2 + a_0 = 0$
- **The Store** – (Act I, sc. 7) referring to the interior area of the Engine in which the equations and answers to formulae are held forever—essentially, where the data is stored in a calculator. (This is where Ada and the Man might be at the end of the play!)
- **The Mill** – (Act I, sc. 7) referring to the interior area of the Engine in which the equations are actually calculated
- **Bernoulli’s Numbers** – a sequence of signed rational numbers that commonly occur in number theory, discovered by mathematician Jacob Bernoulli, and released to the public in the early 1700s. (Ada Lovelace’s “*note*

G'' on the Analytical Engine contains an algorithm for generating Bernoulli Numbers—essentially making it the first published computer program!)

- **Example:** B_n (insert polynomials); so $B_{-n} = B_n(0)$, or $B_{+n} = B_n(1)$, etc.

ACT II

- **Faraday's Electricity** – Michael Faraday was an English scientist who contributed to the discovery of electromagnetics and electricity in the early 19th century. His laws for generating electricity would have been well-renowned by students of math and science in the Victorian era
- **Libel** – a published statement that is damaging to a person's reputation
- **Pilloried** – attacked or ridiculed publicly
- **Efface** – to erase
- **Acuity** – sharpness of thought, vision or hearing
- **Turncoat fool** – Victorian English slang for a person who deserts one cause or party for the opposing one
- **Laudanum** – an alcoholic solution containing morphine and ten percent powdered of opium
- **Malcontent** – a dissatisfied, rebellious person; a trouble-maker
- **Harpy (harpie)** – a foul, dangerous creature found in Greek mythology
- **Deacon** – in Catholic, Anglican and Orthodox churches, a minister of an order ranking second below that of a priest
- **Mesmerist** – a hypnotist who uses their skill on unsettled patients to calm the nerves, relieve pain, etc. In the time of our play, a mesmerist would have made house calls, like that of a doctor
- **Opiates** – drugs with morphine-like effects, derived from opium
- **Magnetism** – the physical phenomenon produced the motion of electric charge; or the ability to charm and attract others