**VIII. Choose from the following words to complete the text below. Pay attention that some forms of the words must be changed:**

*~~analog~~, ~~foundations~~, model, ~~to give way~~, ~~limits~~, ~~clerks~~, ~~hypothetical~~, ~~key~~, ~~physicist~~, ~~previous~~, ~~concepts~~, ~~calculus~~, computational, ~~to store~~, ~~to perform~~, ~~digit~~, ~~continuous~~, ~~to refer~~, ~~to follow~~, ~~in accordance with~~, ~~to state~~*

Before the 1920s, computers (sometimes computors) were human 1) **clerks** that performed computations. They were usually under the lead of a 2)***physicis*** Many thousands of computers were employed in commerce, government, and research establishments. Most of these computers were women, and they were known to have a degree in 3) **calculus** Some 4) **performed** astronomical calculations for calendars.

After the 1920s, the expression computing machine 5) **referred** to any machine that performed the work of a human computer, especially those 6) **in accordance with** the effective methods of the [Church-Turing thesis](http://en.wikipedia.org/wiki/Church-Turing_thesis). The thesis 7) **stated** that a mathematical method is effective if it could be set out as a list of instructions able to be 8) **followed** by a human clerk with paper and pencil, for as long as necessary, and without ingenuity or insight.

Machines that computed with 9) **continuous** values became known as the 10) **analog** kind. They used machinery that represented continuous numeric quantities, like the angle of a shaft rotation or difference in electrical potential.

Digital machinery, in contrast to analog, were able to render a state of a numeric value and store each individual 11) **digit** Digital machinery used difference engines or relays before the invention of faster memory devices.

The phrase computing machine gradually 12) **gave away** , after the late 1940s, to just computer as the onset of electronic digital machinery became common. These computers were able to perform the calculations that were performed by the 13) **previous** human clerks.

Since the values 14) **stored** by digital machines were not bound to physical properties like analog devices, a logical computer, based on digital equipment, was able to do anything that could be described "purely mechanical." The theoretical [Turing Machine](http://en.wikipedia.org/wiki/Turing_Machine), created by [Alan Turing](http://en.wikipedia.org/wiki/Alan_Turing), is a 15) **hypothetical** device theorized in order to study the properties of such hardware.

From the time when 16) **computational** processes were performed by human clerks, the study of computability began a science by being able to make evident which was not explicit into ordinary sense more immediate.

The mathematical 17) **foundations** of modern computer science began to be laid by [Kurt Gödel](http://en.wikipedia.org/wiki/Kurt_G%C3%B6del) with his [incompleteness theorem](http://en.wikipedia.org/wiki/G%C3%B6del%27s_incompleteness_theorems) ([1931](http://en.wikipedia.org/wiki/1931)). In this theorem, he showed that there were 18) **limits** to what could be proved and disproved within a [formal system](http://en.wikipedia.org/wiki/Formal_system). This led to work by Gödel and others to define and describe these formal systems, including 19) **concepts** such as [mu-recursive functions](http://en.wikipedia.org/wiki/Mu-recursive_function) and [lambda-definable functions](http://en.wikipedia.org/wiki/Lambda-definable_functions).

[1936](http://en.wikipedia.org/wiki/1936) was a 20) **key** year for computer science. Alan Turing and [Alonzo Church](http://en.wikipedia.org/wiki/Alonzo_Church) independently, and also together, introduced the formalization of an [algorithm](http://en.wikipedia.org/wiki/Algorithm), with limits on what can be computed, and a "purely mechanical" 21) **model** for computing.