# Checksum Functions

**27 functions**

Common Mathematical Algorithm - 4 functions

Employed Checksums CheckDigits - 23 functions

Output RETURN mechanism if nothing other is published: FREE_IT

TestSQLs with NULL run only in FireBird 2.

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### Checksum functions: common mathematical algorithm

Preliminary note from Wikipedia (http://en.wikipedia.org/wiki/Checksum):

A checksum or hash sum is a fixed-size datum computed from an arbitrary block of digital data for the purpose of detecting accidental errors that may have been introduced during its transmissions or storage. The integrity of the data can be checked at any later time by recomputing the checksum and comparing it with the stored one. If the checksums do not match, the data was certainly altered.

Checksum functions are related to hash functions, fingerprints, randomisation functions, and cryptographic hash functions. However, each of those concepts has different applications and therefore different design goals. Check digits and parity bits are special cases of checksums, appropriate for small blocks of data (such as Social Security numbers, bank account numbers, computer words, single bytes, etc.). Some error-correcting codes are based on special checksums that not only detect common errors but also allow the original data to be recovered in certain cases.