| Name | Description |
|---|---|
| $setEquals | Returns true if the input sets have the same distinct elements. Accepts two or more argument expressions. |
| $setIntersection | Returns a set with elements that appear in *all* of the input sets. Accepts any number of argument expressions. |
| $setUnion | Returns a set with elements that appear in *any* of the input sets. Accepts any number of argument expressions. |
| $setDifference | Returns a set with elements that appear in the first set but not in the second set; i.e. performs a relative complement[20] of the second set relative to the first. Accepts exactly two argument expressions. |
| $setIsSubset | Returns true if all elements of the first set appear in the second set, including when the first set equals the second set; i.e. not a strict subset[21]. Accepts exactly two argument expressions. |
| $anyElementTrue | Returns true if *any* elements of a set evaluate to true; otherwise, returns false. Accepts a single argument expression. |
| $allElementsTrue | Returns true if *no* element of a set evaluates to false, otherwise, returns false. Accepts a single argument expression. |

**Comparison Expressions** Comparison expressions return a boolean except for $cmp which returns a number.

The comparison expressions take two argument expressions and compare both value and type, using the *specified BSON comparison order* (page 179) for values of different types.

| Name | Description |
|---|---|
| $cmp | Returns: 0 if the two values are equivalent, 1 if the first value is greater than the second, and −1 if the first value is less than the second. |
| $eq | Returns true if the values are equivalent. |
| $gt | Returns true if the first value is greater than the second. |
| $gte | Returns true if the first value is greater than or equal to the second. |
| $lt | Returns true if the first value is less than the second. |
| $lte | Returns true if the first value is less than or equal to the second. |
| $ne | Returns true if the values are *not* equivalent. |

**Arithmetic Expressions** Arithmetic expressions perform mathematic operations on numbers. Some arithmetic expressions can also support date arithmetic.

| Name | Description |
|---|---|
| $add | Adds numbers to return the sum, or adds numbers and a date to return a new date. If adding numbers and a date, treats the numbers as milliseconds. Accepts any number of argument expressions, but at most, one expression can resolve to a date. |
| $subtract | Returns the result of subtracting the second value from the first. If the two values are numbers, return the difference. If the two values are dates, return the difference in milliseconds. If the two values are a date and a number in milliseconds, return the resulting date. Accepts two argument expressions. If the two values are a date and a number, specify the date argument first as it is not meaningful to subtract a date from a number. |
| $multiply | Multiplies numbers to return the product. Accepts any number of argument expressions. |
| $divide | Returns the result of dividing the first number by the second. Accepts two argument expressions. |
| $mod | Returns the remainder of the first number divided by the second. Accepts two argument expressions. |

**String Expressions** String expressions, with the exception of $concat, only have a well-defined behavior for strings of ASCII characters.

$concat behavior is well-defined regardless of the characters used.

[20] http://en.wikipedia.org/wiki/Complement_(set_theory)
[21] http://en.wikipedia.org/wiki/Subset