

# F-83 Scripting Manual

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## 1 Decimal to Binary

$$\frac{0}{y} + 10^x \left( y - 2\text{Rnd} \left( \frac{y}{2} - 0.5 \right) \right) + \quad (1)$$

$$0\text{Pol} \left[ (x+1) * \cos \left( \text{Rnd} \left( \frac{y}{2} - 0.5 \right) \right), (x+1) * \sin \left( \text{Rnd} \left( \frac{y}{2} - 0.5 \right) \right) \right] M + \quad (2)$$

Variable	Start	End
$x$	0	?
$y$	10	0
$M$	0	1010

## 2 Binary to Decimal

$$\frac{0}{x - \text{Rnd}(\log(A) + 0.5)} + 2^x \left[ \text{Rnd} \left( \frac{A}{10^x} - 0.5 \right) - 10 \text{Rnd} \left( \frac{A}{10^{x+1}} - 0.5 \right) \right] + 0\text{Rec}(x+1, 0) M +$$

Variable	Start	End
$x$	0	?
$A$	1011	0
$M$	0	11

## 3 Sum

$$\sum_{x=a}^n f(x) = f(x) + \frac{0\text{Rec}(x+1, 0)}{x-n-2} M +$$

Variable	Start	End
$x$	$a$	$n$
$M$	0	$\Sigma$

## 4 Sequences

$$T_n = A \cdot r^n \quad (3)$$

$$r = \frac{T_y}{T_x}^{(y-x)^{-1}} \quad (4)$$

$$A = \frac{T_x}{r^x} \quad (5)$$

$$S_n = \frac{Ar(1 - r^n)}{1 - r} \quad (6)$$

Where A is the starting value i.e.  $T_0$  and r is the common ratio.

In 2009, the population was 2,000. By 2013, the population was 32,000.  
Find the general formula.

## 5 Probability

### Venn Diagram

$$P(E \cup F) = P(E) + P(F) - P(E \cap F) \quad (7)$$

### Conditional Events

$$P(F|G) = \frac{P(F \cap G)}{P(G)} \quad (8)$$

**Mutually Exclusive** Both events cannot occur simultaneously - Their intersection is an empty set.

Draw a single card that: Is black & is a Jack of Diamonds

$$P(E \cup F) = P(E) + P(F) \quad (9)$$

**Independent Events** The outcome of one event has no bearing on the other. Roll a die and flip a coin.

$$P(E \cap F) = P(E) \cdot P(F) \quad (10)$$