

lamaLibrary: Power of 10

A power of 10 (10^x) is any of the integer powers of the number ten; in other words, ten multiplied by itself a certain number of times. By definition, the number one is a power (*the zeroth power*) of ten.

```
FUNCTION "powerOfTen" : REAL
{ S7_Optimized_Access := 'TRUE' }
VERSION : 0.1
  VAR_INPUT
    power : REAL; // 10^power
  END_VAR

  VAR_TEMP
    COUNT : INT;
    out : REAL;
    i : INT;
  END_VAR

BEGIN
  // void := 10 ^ power

  // A power of 10 is any of the integer powers of the number ten; in
  // other words,
  // ten multiplied by itself a certain number of times (when the power is
  // a positive integer).

  #out := 1.0;

  IF #power > 0.0 THEN // positive power
    #count := REAL_TO_INT(#power);
    FOR #i := 0 TO #count DO
      #out := #out * 10.0;
    END_FOR;
  END_IF;

  IF #power < 0.0 THEN // negative power
    #count := REAL_TO_INT(#power * -1.0) ;
    FOR #i := 0 TO #count DO
      #out := #out / 10.0;
    END_FOR;
  END_IF;

  // output
  #powerOfTen := #out;
END_FUNCTION
```





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