

# 10–02 digit puzzle

It's October 2, so for this digit puzzle, you must use the digits 1, 0, 0, and 2 exactly once (in any order). Brackets are allowed, and you can use (finitely many of) the following operations:

- Standard operations:  $+$ ,  $-$ ,  $\times$ ,  $\div$
- Negation:  $-\square$
- Exponentiation of two numbers:  $\square^\square$
- Square root of a number:  $\sqrt{\square}$
- Factorial:  $\square!$  (Note: you may use iterated factorial but not multi-factorial, so that  $3!! = (3!)! = 6! = 720$ , and not  $3!! = 3 \times 1 = 3$ .)
- Digit decimal:  $.d$  (with an original digit; you cannot do  $.4! = .24$ )
- Digit repeating decimal:  $.\bar{d}$  (with an original digit)
- Percent:  $\square\%$

Make the numbers from 0 to 20, if possible. Want a challenge? Try to do it so that the digits are in order (they might not all be possible).