

Using Parameters to Accumulate Answers

1. factorial(X, Y) :- fast(0, 1, X, Y).
2. fast(X, Y, X, Y).
3. fast(X, Y, U, V) :- W is (X+1), Z is (W*Y),
fast(W, Z, U, V).

?- factorial(3, A). [1] {3/X₁, A/Y₁}

?- fast(0, 1, 3, A). [3] {0/X₂, 1/Y₂, 3/U₂, A/V₂}

?- W₂ is (0+1), Z₂ is (W₂*1), [] {1/W₂, 1/Z₂}
fast(W₂, Z₂, 3, A).

?- fast(1, 1, 3, A). [3] {1/X₃, 1/Y₃, 3/U₃, A/V₃}

?- W₃ is (1+1), Z₃ is (W₃*1), [] {2/W₃, 2/Z₃}
fast(W₃, Z₃, 3, A).

?- fast(2, 2, 3, A). [3] {2/X₄, 2/Y₄, 3/U₄, A/V₄}

?- W₄ is (2+1), Z₄ is (W₄*2), [] {3/W₄, 6/Z₄}
fast(W₄, Z₄, 3, A).

?- fast(3, 6, 3, A). [2] {3/X₅, 6/Y₅, 6/A}

?- EMPTY !! A = 6