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1 #lang racket
2
3 (require "simplify.rkt")
4
5 (simplify '(/
6           a
7           (pick
8             (- ;; Simplified
9               (pick
10                (-
11                  (-
12                    (+
13                      (+
14                        (/ 1 (+ 0 b))
15                        (pick 2 b a))
16                        (- b (pick 2 a a)))
17                      (+ (pick (+ c 2) b (- a c)) a))
18                      (pick (pick (pick 0 b 0) 0 (- 2 a)) c (- a (- (- 2 2) (/ b 1))))))
19                      (+ a (+ 2 (* (- 2 (pick 2 2 3)) (/ (pick a 0 a) (* b (+ c a))))))
20                      (+ (pick a (pick (- b b) (/ 3 3) (/ 3 b)) (* (pick b 3 b) (* (* c a)
20 1))) (+ (pick (* (+ 2 1) (+ c a)) (pick 2 2 c) c) (- b (/ (/ (/ 2 0) (pick 1 3 2)) (*
20 (* c 2) (* b 1)))))))
21                (- 0 (* (/ (/ (* (+ (pick 2 1 b) (- a (+ c b))) (* (/ (/ 1 b) b) (/ (pick
21 a b b) a))) (/ (- (+ (+ 0 c) (+ 0 a)) 2) 1)) a a)))
22              (+ ;; Simplified
23                (/
24                  (+
25                    (+
26                      (/ (pick (* (- 2 c) (+ 3 3)) (- (- 3 a) (* 1 2)) (/ (pick c 0 a) (/ c
26 3))) (* (pick 3 (- 1 c) (* 1 2)) (pick (/ b c) (* a 2) (+ c 3))))
27                      (- 3 (pick b (+ (+ 2 c) (pick c b b)) (- 3 (* 0 a))))))
28                    (+
29                      (+ (+ (- b (* 0 (- b a))) (* (/ (+ 3 1) (* c b)) b)) (* b (- (+ (- 3
29 0) (- b 2)) (pick c 2 3))))
30                      (- (- (* (+ (+ c 2) (+ b 0)) (/ 3 3)) (/ (* (+ 1 a) (- 3 a)) (/ (* 1
30 b) (pick c 1 2)))) (+ (+ c (/ (+ 2 b) a)) (+ (* 3 c) (/ (pick a b b) (- a c))))))
31                  (/ a 3)) c)
32              (/ ;; Error. Rule 12: (o X Y) → ERROR if either X or Y is an ERROR for any
32 arithmetic operator o
33                (/
34                  (/
35                    (-
36                      (/
37                        (pick (pick 3 b 0) 1 (* (pick 0 c a) (- b b)))
38                        (- (pick (pick 3 3 1) 3 (- c b)) (+ 0 2)))
39                      (/ ;; Error: Division By 0. Rule 9: (/ X 0) → ERROR for any X
40                        (pick
41                          (* (/ 0 c) (* 1 a))
42                          (+ (- 1 1) (- 3 1))
43                          (+ (pick b 2 b) (+ 1 a)))
44                          (* ;; Becomes 0. Rule 4: (* 0 X) → 0 for any X
45                            (*
46                              (*
47                                (* 0 2) ;; Becomes 0. Rule 4: (* 0 X) → 0 for any X
48                                (/ b a))
49                                (* (* 1 3) (+ c 3)))
50                                (+ a 0))))
51                        b)
52                      (/
53                        (/ b 1)
54                        (pick
55                          (+ (pick a (pick b a a) (/ 3 1)) a)
56                          (pick (pick 2 2 3) (- (/ 2 3) (+ 2 b)) (* (/ a c) (- c a)))

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57         (pick (- 2 (- 0 0)) (/ (* 1 1) (- c c) c)))
58     (*
59     (*
60     (-
61     (* (* (pick (- c 2) (pick b c 2) (* c b)) (pick 2 (/ 0 3) (pick b b
61 1))) a)
62     (pick (pick (* 1 c) (/ 3 2) (+ a 1)) (/ (- (+ c b) (- c c)) (- (pick 2
62 0 2) (* 3 1))) (pick (+ b c) a (+ b c))))
63     (pick
64     (* b 1)
65     (pick (pick a b a) 2 (/ a (- c a)))
66     (pick (pick c a b) (- (+ a a) (- b a)) (- (pick c 2 0) (- 0 3))))))
67     (-
68     (pick
69     (-
70     (/ (- a 0) a)
71     (*
72     (/ ;; Error: Division By 0. Rule 9: (/ X 0) → ERROR for any X
73     (pick 3 c 2)
74     (/ 0 c)) ;; Becomes 0. Rule 14: (/ 0 X) → 0 for any X other than 0
74 and 1
75     (- (+ 3 2) (/ 1 c))))
76     (pick (+ (+ 3 c) (- 0 a)) (pick 1 b 3) (+ (+ c c) 0))
77     (- (+ (/ a b) (+ (pick b a 2) (pick 1 b c))) (* 2 (pick 0 a 1))))
78     (pick
79     (- (+ (+ (pick b 0 b) 3) (/ (* 2 c) (/ 2 1))) (+ b (/ (- b 2) (/ 3
79 b))))
80     (+ c (pick (+ 3 1) (- b a) (+ a b)))
81     (- (* (pick 2 a a) (/ 1 (+ b 0))) (* (- c (- c c)) (- (* 0 3) (pick a
81 2 a)))))))))

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