1. Write a set of inference rules that allow us to work through a simple addition example.

DoPlus Example:
4 + 2 = 6

DoPlus Example:
5 + 6 = 11

SearchPlus Example:
5 + (4 + 2) (use SearchPlus to step on e2)
5 + 6 (use DoPlus)
11

SearchPlus2 Example:
(2 + 3) + (4 + 2) (use SearchPlus 2 to step on e1)
5 + (4 + 2) (use SearchPlus to step on e2)
5 + 6 (use DoPlus)
11

2. Write a set of inference rules such that the evaluation of e1 / e2 short-circuits if e2 is zero.

Definition: Short-circuiting is when we return out of an evaluation early. Here, we know that anything divided by zero is undefined - it doesn't matter what the numerator is. So if the denominator is ever zero, we can return undefined without looking at e1 (the numerator) at all.

Short-Circuit Example:
((6/2)/3)/0 -> undefined

DoMinus Example
3 - 3 = 0

DoMinus Example
4 - 1 = 3

DoDiv1 Example:
81 / 3 = 27

DoDiv1 Example:
27 / 3 = 9

DoDiv2 Example:
((6/2)/3) / 0 -> undefined

DoDiv2 Example:

(81/3/) / 0 = undefined

SearchDiv1 Example:
(81/3) / (3-3) (use SearchDiv1/DoMinus to step on e2)
(81/3) / 0 (use DoDiv2 to short-circuit)
undefined

SearchDiv2 Example:
(81/3) / (4-1) (use SearchDiv1/DoMinus to step on e2)
(81/3) / 3 (use SearchDiv2 to step on e1)
27 / 3 (use DoDiv1)
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