

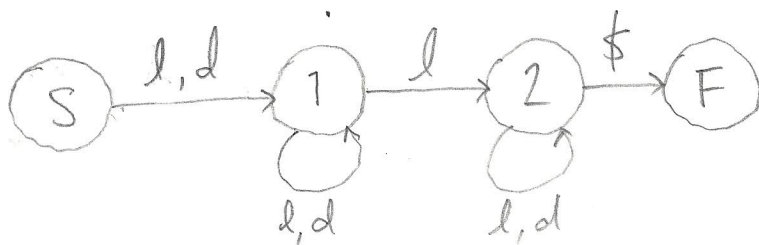
3.1)

Identifier \rightarrow Letter Ident
 Ident \rightarrow (Letter | Digit) Ident | λ
 Float \rightarrow Integer . Integer
 Integer \rightarrow Digit Integer

3.2)

Identifier \rightarrow Letter Ident
 Ident \rightarrow Ident (Letter | Digit) | λ
 Float \rightarrow Integer . Integer
 Integer \rightarrow Integer Digit

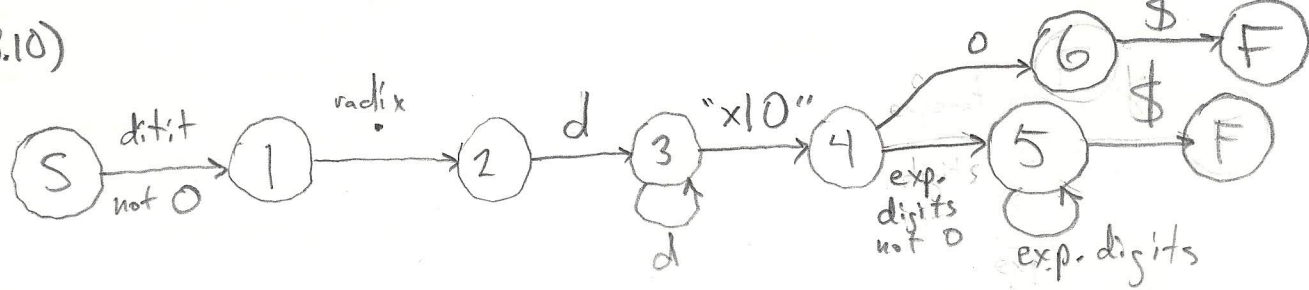
3.3)



o confused about "Hint" provided, as the question does not say that the identifier cannot start w/ letter.

3.4) A DFSA is not able to keep track of how many left parens and how many right parens have been consumed, so cannot test for balanced parens.

3.10)



$$(1|...|9) \cdot (0|...|9)^* \times 10 (0|(1|...|9)(0|...|9)^*)$$

$S_{Sci} \rightarrow$ Nonzero digit . Integer $\times 10$ Exponent

Nonzerodigit $\rightarrow (1|...|9)$

Integer $\rightarrow (0|...|9)$ Integer

Exponent $\rightarrow 0|(1|...|9)$ Exp

Exp $\rightarrow (0|...|9)$

legal : 3.0×10^0

1.808×10^{300}

not legal : 1.808×10^{01}

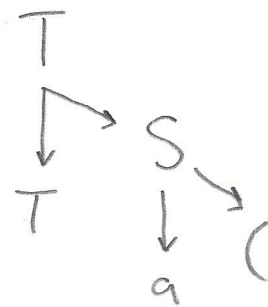
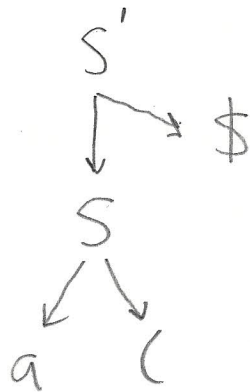
$3. \times 10^1$

$.8 \times 10^1$

0.0×10^0

3.16)

a.) $S' \rightarrow S \$$
 $S \rightarrow a | d | a | (T)$
 $T \rightarrow T, S | S$



b.)

First (S) = a (

First (T) = a (