

Homework: Context-Free Grammars

1.

Signed-real-const -> sign digit-seq . digit-seq |
 sign digit-seq . digit-seq exponent |
 sign digit-seq . |
 sign digit-seq . exponent

2.

bool-exp

bool-exp OR bool-exp

NOT(bool-exp OR bool-exp)

NOT((bool-exp AND bool-exp) OR bool-exp)

NOT((F AND bool-exp) OR bool-exp)

NOT((F AND T) OR bool-exp)

NOT((F AND T) OR F)

3.

a.

bool-exp

NOT(bool-exp)

NOT(bool-exp OR bool-exp)

NOT(bool-exp OR bool-exp AND bool-exp)

NOT(T OR bool-exp AND bool-exp)

NOT(T OR T AND bool-exp)

NOT(T OR T AND F)

b.

bool-exp

NOT(bool-exp)

NOT(bool-exp OR bool-exp)

NOT(T OR bool-exp)

NOT(T OR bool-exp AND bool-exp)

NOT(T OR T AND bool-exp)

NOT(T OR T AND F)

4.

expr

expr add-op term

expr add-op factor

expr add-op digit-seq

expr add-op digit

expr add-op 4

expr + 4

expr add-op term + 4

expr add-op factor + 4

expr add-op digit-seq + 4

expr add-op digit + 4

expr add-op 1 + 4

expr + 1 + 4

term + 1 + 4

term mult-op factor + 1 + 4

term mult-op digit-seq + 1 + 4

term mult-op digit + 1 + 4

term mult-op 3 + 1 + 4

term * 3 + 1 + 4

factor * 3 + 1 + 4

digit-seq * 3 + 1 + 4

digit * 3 + 1 + 4

5 * 3 + 1 + 4

5.

expr

term add-op term add-op term

term add-op term add-op factor

term add-op term add-op digit-seq

term add-op term add-op digit

term add-op term add-op 4

term add-op term + 4

term add-op factor + 4

term add-op digit-seq + 4

term add-op digit + 4

term add-op 1 + 4

term + 1 + 4

term mult-op factor + 1 + 4

term mult-op digit-seq + 1 + 4

term mult-op digit + 1 + 4

term mult-op 3 + 1 + 4

term * 3 + 1 + 4

factor * 3 + 1 + 4

digit-seq * 3 + 1 + 4

digit * 3 + 1 + 4

5 * 3 + 1 + 4