Hwk 6

1.

$S_0 \to S$

$S \to A$

$A \to BAB \mid B \mid 1 \mid \epsilon$

$B \to 00 \mid \epsilon$

2.a.

$S \to A$

$A \to AaB$

$B \to b \mid C \mid \epsilon$

$C \to CC \mid c \mid \epsilon$

⇒

$S \to A$

$A \to AaB$

$B \to b \mid C \mid \epsilon$

$C \to CC \mid c$

⇒

$S \to A$

$A \to AaB \mid Aa$

$B \to b \mid C$

$C \to CC \mid c$

2.b.

$S \to A$

$A \to AA \mid AB \mid B \mid a$

$B \to BB \mid b \mid \epsilon$

⇒

$S \to A$

$A \to AA \mid AB \mid A \mid B \mid a \mid \epsilon$

$B \to BB \mid b$

⇓

$S \to A$

$A \to AA \mid AB \mid A \mid B \mid a$

$B \to BB \mid b$

3.a.

$S \to A$

$A \to AA|AB|A|B|aB$

$B \to BB|Bb|b$

$J \to a$

$K \to b$

⇒

$S \to AA|AB|JB|BB|BK|K$

$A \to AA|AB|JB|BB|BK|K$

$B \to BB|BK|K$

$J \to a$

$K \to b$

3.b.

$S \to A|\epsilon$

$A \to BC$

$B \to BD|bb$

$C \to CD|cc$

$D \to B|C$

$J \to b$

$K \to c$

⇒

$S \to BC|\epsilon$

~~$A \to BC$~~

$B \to BD|JJ$

$C \to CD|KK$

$D \to BD|JJ|CD|KK$

$J \to b$

$K \to c$

4.

$J \to a$	$L \to AB$
$K \to b$	$M \to JB$

$S \to AAB|aBb|ABB|Ab$

$A \to AAB|aBb|ABB|Ab$

$B \to BB|Bb|b$

⇒

$S \to AL|JBK|LB|AK$

$A \to AL|JBK|LB|AK$

$B \to BB|BK|K$

$S \to AL|MK|LB|AK$

⇒

$A \to AL|MK|LB|AK$

$B \to BB|BK|K$

5. $A \to B|C|x$

$B \to \sqrt{C}|\sqrt{A}$

$C \to (D)|(A)$

$D \to A+A$

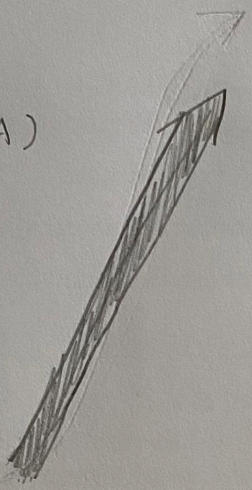
$\Downarrow$

$A \to B|C|x$

$B \to \sqrt{C}|\sqrt{A}$

$C \to (A+A)|(A)$

$\Downarrow$



$A \to \sqrt{C}|\sqrt{A}|C|x$

$C \to (A+A)|(A)$

$\Downarrow$

$A \to \sqrt{A}|C|x$

$C \to (A+A)|(A)$

$\Downarrow$

$A \to \sqrt{A}|(A+A)|(A)|x$

$\delta(q, \epsilon, A) = \{(q, \sqrt{A}) | (q, (A)) | (q, x) | (q, (A+A))\}$

$\delta(q, \sqrt{}, \sqrt{}) = \{(q, \epsilon)\}$

$\delta(q, x, x) = \{(q, \epsilon)\}$

$\delta(q, (, () = \{(q, \epsilon)\}$

$\delta(q,),)) = \{(q, \epsilon)\}$

$\delta(q, +, +) = \{(q, \epsilon)\}$