This is the key I used to reduce visual clutter.

Each non-terminal in the handout was represented as a single uppercase letter

|  |  |
| --- | --- |
| **Key** | |
| **Handout** | **This Assignment** |
| <sentence> | S |
| <expr> | E |
| <term> | T |
| <factor> | F |
| <id> | I |
| <mulop> | M |
| <addop> | A |
| <letter> | L |
| <digit> | D |

|  |  |  |
| --- | --- | --- |
| **Problem 1 Part 1** | | |
| **Stack** | **Remaining Terminals** | **Rule(to progress)** |
| S | (a+b)\*c | 1 |
| E | (a+b)\*c | 2 |
| T | (a+b)\*c | 5 |
| FMT | (a+b)\*c | 7 |
| (E)MT | (a+b)\*c | pop ( |
| E)MT) | a+b)\*c | 3 |
| EAT)MT | a+b)\*c | 2 |
| TAT)MT | a+b)\*c | 4 |
| FAT)MT | a+b)\*c | 6 |
| IAT)MT | a+b)\*c | 8 |
| LAT)MT | a+b)\*c | 13 |
| aAT)MT | a+b)\*c | pop a |
| AT)MT | +b)\*c | 11 |
| +T)MT | +b)\*c | pop + |
| T)MT | b)\*c | 4 |
| F)MT | b)\*c | 6 |
| I)MT | b)\*c | 8 |
| L)MT | b)\*c | 14 |
| b)MT | b)\*c | pop b |
| )MT | )\*c | pop ) |
| MT | \*c | 12 |
| \*T | \*c | pop \* |
| T | c | 4 |
| F | c | 6 |
| I | c | 8 |
| L | c | 15 |
| c | c | pop c |
| Done | | |

|  |  |  |
| --- | --- | --- |
| **Problem 1 Part 2** | | |
| **Stack** | **Remaining Terminals** | **Rule(to progress)** |
| S | a\*(b+a)-c | 1 |
| E | a\*(b+a)-c | 3 |
| EAT | a\*(b+a)-c | 2 |
| TAT | a\*(b+a)-c | 5 |
| FMTAT | a\*(b+a)-c | 6 |
| IMTAT | a\*(b+a)-c | 8 |
| LMTAT | a\*(b+a)-c | 13 |
| aMTAT | a\*(b+a)-c | pop a |
| MTAT | \*(b+a)-c | 11 |
| \*TAT | (b+a)-c | pop \* |
| TAT | (b+a)-c | 4 |
| AT | (b+a)-c | 7 |
| (E)AT | b+a)-c | pop ( |
| E)AT | b+a)-c | 3 |
| EAT)AT | b+a)-c | 2 |
| TAT)AT | b+a)-c | 4 |
| FAT)AT | b+a)-c | 6 |
| IAT)AT | b+a)-c | 8 |
| LAT)AT | b+a)-c | 14 |
| bAT)AT | +a)-c | pop b |
| AT)AT | +a)-c | 12 |
| +T)AT | +a)-c | pop + |
| T)AT | a)-c | 4 |
| F)AT | a)-c | 6 |
| I)AT | a)-c | 8 |
| L)AT | a)-c | 13 |
| a)AT | a)-c | pop a |
| )AT | -c | pop ) |
| AT | -c | 12 |
| -T | c | pop - |
| T | c | 4 |
| F | c | 6 |
| I | c | 8 |
| L | c | 15 |
| c | c | pop c |
| Done | | |

|  |  |  |
| --- | --- | --- |
| **Problem 2 Part 1** | | |
|  | First | Follow |
| S | {a,b,c,d} | $ |
| E | {a,b,c,d} | {$} |
| T | {a,b,c,d} | {+,$} |
| F | {a,b,c,d} | {+,\*,$} |
| I | {a,b,c,d} | {+,\*,$} |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Problem 2 Part 2** | | | | | | | |
|  | a | b | c | d | + | \* | $ |
| S | 1 | 1 | 1 | 1 | - | - | - |
| E | 2 | 2 | 2 | 2 | - | - | - |
| T | 4 | 4 | 4 | 4 | - | - | - |
| F | 6 | 6 | 6 | 6 | - | - | - |
| I | 7 | 8 | 9 | 10 | - | - | - |