

Step 4:

M	+	*	()	id	\$
E	-	-	$E \rightarrow TE'$		$E \rightarrow TE'$	
E'	$E' \rightarrow +TE'$			$E' \rightarrow \epsilon$		$E' \rightarrow \epsilon$
T			$T \rightarrow FT'$		$T \rightarrow FT'$	
T'	$T' \rightarrow \epsilon$	$T' \rightarrow *FT'$		$T' \rightarrow \epsilon$		$T' \rightarrow \epsilon$
F			$F \rightarrow (E)$		$F \rightarrow id$	

1) $E \rightarrow TE'$
 $A \rightarrow \alpha$
 $FIRST(\alpha) = FIRST(TE')$
 $= FIRST(T)$
 $= \{(, id)\}$

2) $E' \rightarrow +TE'$
 $A \rightarrow \alpha$
 $FIRST(\alpha) = FIRST(+TE')$
 $= \{+\}$

3) $E' \rightarrow \epsilon$
 $A \rightarrow \alpha$
 $FIRST(\alpha) = FIRST(\epsilon) = \{\epsilon\}$
 $FOLLOW(E') = \{ \$,) \}$

4) $T \rightarrow FT'$
 $A \rightarrow \alpha$
 $FIRST(\alpha) = FIRST(FT')$
 $= FIRST(F)$
 $= \{(, id)\}$

5) $T' \rightarrow *FT'$
 $A \rightarrow \alpha$
 $FIRST(\alpha) = FIRST(*FT')$
 $= \{*\}$

6) $T' \rightarrow \epsilon$
 $A \rightarrow \alpha$
 $FIRST(\alpha) = FIRST(\epsilon)$
 $= \{\epsilon\}$
 $FOLLOW(T') = \{ +, \$,) \}$

7) $F \rightarrow (E)$
 $A \rightarrow \alpha$
 $FIRST(\alpha) = FIRST((E))$
 $= \{()\}$

8) $F \rightarrow id$
 $A \rightarrow \alpha$
 $FIRST(\alpha) = FIRST(id)$
 $= \{id\}$

Stack	Input String	Action
\$E	id + id * id \$	$E \rightarrow TE'$, pop E, push E', T
\$E'T	id + id * id \$	$T \rightarrow FT'$, pop T, push T', F
\$E'T'F	id + id * id \$	$F \rightarrow id$, pop F, push id
\$E'T'id	id + id * id \$	pop id, remove current i/p symbol
\$E'T'	+ id * id \$	$T' \rightarrow \epsilon$, pop T', push ϵ
\$E'E	+ id * id \$	$E' * \epsilon = E'$
\$E'	+ id * id \$	$E' \rightarrow +TE'$, pop E', push E', T, +
\$E'T+	+ id * id \$	pop +, remove current i/p symbol
\$E'T	id * id \$	$T \rightarrow FT'$, pop T, push T', F
\$E'T'F	id * id \$	$F \rightarrow id$, pop F, push id
\$E'T'id	id * id \$	pop id, remove current i/p symbol
\$E'T'	* id \$	$T' \rightarrow *FT'$, pop T', push T', F, *
\$E'T'F*	* id \$	pop *, remove current i/p symbol
\$E'T'F	id \$	$F \rightarrow id$, pop F, push id
\$E'T'id	id \$	pop id, remove current i/p symbol
\$E'T'	\$	$T' \rightarrow \epsilon$, pop T', push ϵ
\$E'E	\$	$E' * \epsilon = E'$
\$E'	\$	$E' \rightarrow \epsilon$, pop E', push ϵ
\$E	\$	$\epsilon * \epsilon = \epsilon$
\$	\$	String is valid //