CS320 Assign 5

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QUESTION 1: Derive the sentence $12 + 2 * -07$ using *rightmost* derivation.

$$
\begin{aligned}
&< expr > \\
&< expr > * < expr > \\
&< expr > * < int > \\
&< expr > *- < nat > \\
&< expr > *- < digit >< nat > \\
&< expr > *- < digit >< digit > \\
&< expr > *- < digit > 7 \\
&< expr > * - 07 \\
&< expr > + < expr > * - 07 \\
&< expr > + < int > * - 07 \\
&< expr > + < nat > * - 07 \\
&< expr > + < digit > * - 07 \\
&< expr > +2 * -07 \\
&< int > +2 * -07 \\
&< nat > +2 * -07 \\
&< digit >< nat > +2 * -07 \\
&< digit >< digit > +2 * -07 \\
&< digit > 2 + 2 * -07 \\
&12 + 2 * -07
\end{aligned}
$$

QUESTION 1: Derive the sentence for x = -12 to 10 do { y = 0; pass } using *leftmost* derivation.

$< stmt >$

for $< id >=$ $< expr >$ to $< expr >$ do $< stmt >$

for $< letter >=$ $< expr >$ to $< expr >$ do $< stmt >$

for x = $< expr >$ to $< expr >$ do $< stmt >$

for x = $< int >$ to $< expr >$ do $< stmt >$

for x = $-$ $< nat >$ to $< expr >$ do $< stmt >$

for x = $-$ $< digit >< nat >$ to $< expr >$ do $< stmt >$

for x = $-1 < nat >$ to $< expr >$ do $< stmt >$

for x = $-1 < digit >$ to $< expr >$ do $< stmt >$

for x = -12 to $< expr >$ do $< stmt >$

for x = -12 to $< int >$ do $< stmt >$

for x = -12 to $< nat >$ do $< stmt >$

for x = -12 to $< digit >< nat >$ do $< stmt >$

for x = -12 to 1 $< nat >$ do $< stmt >$

for x = -12 to 1 $< digit >$ do $< stmt >$

for x = -12 to 10 do $< stmt >$

for x = -12 to 10 do $\{< stmts >\}$

for x = -12 to 10 do $\{< stmt >; < stmts >\}$

for x = -12 to 10 do $\{< id >=< expr >; < stmts >\}$

for x = -12 to 10 do $\{< letter >=< expr >; < stmts >\}$

for x = -12 to 10 do { y = $< expr >; < stmts >\}$

for x = -12 to 10 do { y = $< int >; < stmts >\}$

for x = -12 to 10 do { y = $< nat >; < stmts >\}$

for x = -12 to 10 do { y = $< digit >; < stmts >\}$

for x = -12 to 10 do { y = 0; $< stmts >\}$

for x = -12 to 10 do { y = 0; $< stmt >\}$

for x = -12 to 10 do { y = 0; pass }