name: Denary to Roman Numerals

init: qinit

accept: qfin

//Example tape input: 1453

# qinit

qinit,0

qinit,0,>

qinit,1

qinit,1,>

qinit,2

qinit,2,>

qinit,3

qinit,3,>

qinit,4

qinit,4,>

qinit,5

qinit,5,>

qinit,6

qinit,6,>

qinit,7

qinit,7,>

qinit,8

qinit,8,>

qinit,9

qinit,9,>

qinit,\_

return,],<

# readNextDigit

readNextDigit,0

write0,[,>

readNextDigit,1

write1,[,>

readNextDigit,2

write2,[,>

readNextDigit,3

write3,[,>

readNextDigit,4

write4,[,>

readNextDigit,5

write5,[,>

readNextDigit,6

write6,[,>

readNextDigit,7

write7,[,>

readNextDigit,8

write8,[,>

readNextDigit,9

write9,[,>

readNextDigit,]

gotoEnd,\_,>

# write[N]

## write0

//write0

write0,0 //0

write0,0,>

write0,1

write0,1,>

write0,2

write0,2,>

write0,3

write0,3,>

write0,4

write0,4,>

write0,5

write0,5,>

write0,6

write0,6,>

write0,7

write0,7,>

write0,8

write0,8,>

write0,9

write0,9,>

write0,]

write0,],>

write0,I

write0,I,>

write0,V

write0,V,>

write0,X

write0,X,>

write0,|

write0,|,>

write0,\_

return,|,< //Write0, uniquely, moves left here

## write1

write1,0

write1,0,>

write1,1

write1,1,>

write1,2

write1,2,>

write1,3

write1,3,>

write1,4

write1,4,>

write1,5

write1,5,>

write1,6

write1,6,>

write1,7

write1,7,>

write1,8

write1,8,>

write1,9

write1,9,>

write1,]

write1,],>

write1,I

write1,I,>

write1,V

write1,V,>

write1,X

write1,X,>

write1,|

write1,|,>

write1,\_

write0,I,>

## write2

write2,0

write2,0,>

write2,1

write2,1,>

write2,2

write2,2,>

write2,3

write2,3,>

write2,4

write2,4,>

write2,5

write2,5,>

write2,6

write2,6,>

write2,7

write2,7,>

write2,8

write2,8,>

write2,9

write2,9,>

write2,]

write2,],>

write2,I

write2,I,>

write2,V

write2,V,>

write2,X

write2,X,>

write2,|

write2,|,>

write2,\_

write1,I,>

## write3

write3,0

write3,0,>

write3,1

write3,1,>

write3,2

write3,2,>

write3,3

write3,3,>

write3,4

write3,4,>

write3,5

write3,5,>

write3,6

write3,6,>

write3,7

write3,7,>

write3,8

write3,8,>

write3,9

write3,9,>

write3,]

write3,],>

write3,I

write3,I,>

write3,V

write3,V,>

write3,X

write3,X,>

write3,|

write3,|,>

write3,\_

write2,I,>

## write4

write4,0

write4,0,>

write4,1

write4,1,>

write4,2

write4,2,>

write4,3

write4,3,>

write4,4

write4,4,>

write4,5

write4,5,>

write4,6

write4,6,>

write4,7

write4,7,>

write4,8

write4,8,>

write4,9

write4,9,>

write4,]

write4,],>

write4,I

write4,I,>

write4,V

write4,V,>

write4,X

write4,X,>

write4,|

write4,|,>

write4,\_

write5,I,>

## write5

write5,0

write5,0,>

write5,1

write5,1,>

write5,2

write5,2,>

write5,3

write5,3,>

write5,4

write5,4,>

write5,5

write5,5,>

write5,6

write5,6,>

write5,7

write5,7,>

write5,8

write5,8,>

write5,9

write5,9,>

write5,]

write5,],>

write5,I

write5,I,>

write5,V

write5,V,>

write5,X

write5,X,>

write5,|

write5,|,>

write5,\_

write0,V,>

## write6

write6,0

write6,0,>

write6,1

write6,1,>

write6,2

write6,2,>

write6,3

write6,3,>

write6,4

write6,4,>

write6,5

write6,5,>

write6,6

write6,6,>

write6,7

write6,7,>

write6,8

write6,8,>

write6,9

write6,9,>

write6,]

write6,],>

write6,I

write6,I,>

write6,V

write6,V,>

write6,X

write6,X,>

write6,|

write6,|,>

write6,\_

write1,V,>

## write7

write7,0

write7,0,>

write7,1

write7,1,>

write7,2

write7,2,>

write7,3

write7,3,>

write7,4

write7,4,>

write7,5

write7,5,>

write7,6

write7,6,>

write7,7

write7,7,>

write7,8

write7,8,>

write7,9

write7,9,>

write7,]

write7,],>

write7,I

write7,I,>

write7,V

write7,V,>

write7,X

write7,X,>

write7,|

write7,|,>

write7,\_

write2,V,>

## write8

write8,0

write8,0,>

write8,1

write8,1,>

write8,2

write8,2,>

write8,3

write8,3,>

write8,4

write8,4,>

write8,5

write8,5,>

write8,6

write8,6,>

write8,7

write8,7,>

write8,8

write8,8,>

write8,9

write8,9,>

write8,]

write8,],>

write8,I

write8,I,>

write8,V

write8,V,>

write8,X

write8,X,>

write8,|

write8,|,>

write8,\_

write3,V,>

## write9

write9,0

write9,0,>

write9,1

write9,1,>

write9,2

write9,2,>

write9,3

write9,3,>

write9,4

write9,4,>

write9,5

write9,5,>

write9,6

write9,6,>

write9,7

write9,7,>

write9,8

write9,8,>

write9,9

write9,9,>

write9,]

write9,],>

write9,I

write9,I,>

write9,V

write9,V,>

write9,X

write9,X,>

write9,|

write9,|,>

write9,\_

write10,I,>

## Write10

write10,\_

write0,X,>

# return

return,0

return,0,<

return,1

return,1,<

return,2

return,2,<

return,3

return,3,<

return,4

return,4,<

return,5

return,5,<

return,6

return,6,<

return,7

return,7,<

return,8

return,8,<

return,9

return,9,<

return,I

return,I,<

return,V

return,V,<

return,X

return,X,<

return,|

return,|,<

return,]

return,],<

return,[

readNextDigit,\_,>

return,\_

readNextDigit,\_,>

# gotoEnd

gotoEnd,|

gotoEnd,|,>

gotoEnd,I

gotoEnd,I,>

gotoEnd,V

gotoEnd,V,>

gotoEnd,X

gotoEnd,X,>

gotoEnd,\_

deleteLastBar,\_,<

# deleteLastBar

deleteLastBar,|

symbols1,\_,<

# symbols[Column]

## symbols1

symbols1,I

symbols1,I,<

symbols1,V

symbols1,V,<

symbols1,X

symbols1,X,<

symbols1,|

symbols10,|,<

symbols1,\_

removeBars,\_,>

## symbols10

symbols10,I

symbols10,X,<

symbols10,V

symbols10,L,<

symbols10,X

symbols10,C,<

symbols10,|

symbols100,|,<

symbols10,\_

removeBars,\_,>

## symbols100

symbols100,I

symbols100,C,<

symbols100,V

symbols100,D,<

symbols100,X

symbols100,M,<

symbols100,|

symbols1000,|,<

symbols100,\_

removeBars,\_,>

## symbols1000

symbols1000,I

symbols1000,M,<

symbols1000,\_

removeBars,\_,>

# removeBars

removeBars,|

removeBars,\_,>

removeBars,I

moveI,\_,>

removeBars,V

moveV,\_,>

removeBars,X

moveX,\_,>

removeBars,L

moveL,\_,>

removeBars,C

moveC,\_,>

removeBars,D

moveD,\_,>

removeBars,M

moveM,\_,>

# nextChar

nextChar,|

nextChar,|,>

nextChar,\_

checkForBars,\_,<

nextChar,I

moveI,|,>

nextChar,V

moveV,|,>

nextChar,X

moveX,|,>

nextChar,L

moveL,|,>

nextChar,C

moveC,|,>

nextChar,D

moveD,|,>

nextChar,M

moveM,|,>

# moveSymbol

## moveI

moveI,|

nextChar,I,>

moveI,I

writeI,I,<

moveI,V

writeI,V,<

moveI,X

writeI,X,<

moveI,\_

writeI,\_,<

## moveV

moveV,|

nextChar,V,>

moveV,I

writeV,I,<

moveV,\_

writeV,\_,<

## moveX

moveX,|

nextChar,X,>

moveX,I

writeX,I,<

moveX,V

writeX,V,<

moveX,X

writeX,X,<

moveX,L

writeX,L,<

moveX,C

writeX,C,<

moveX,\_

writeX,\_,<

## moveL

moveL,|

nextChar,L,>

moveL,I

writeL,I,<

moveL,V

writeL,V,<

moveL,X

writeL,X,<

moveL,\_

writeL,\_,<

## moveC

moveC,|

nextChar,C,>

moveC,I

writeC,I,<

moveC,V

writeC,V,<

moveC,X

writeC,X,<

moveC,L

writeC,L,<

moveC,C

writeC,C,<

moveC,D

writeC,D,<

moveC,M

writeC,M,<

moveC,\_

writeC,\_,<

## moveD

moveD,|

nextChar,D,>

moveD,I

writeD,I,<

moveD,V

writeD,V,<

moveD,X

writeD,X,<

moveD,L

writeD,L,<

moveD,C

writeD,C,<

moveD,\_

writeD,\_,<

## moveM

moveM,|

nextChar,M,>

moveM,I

writeM,I,<

moveM,V

writeM,V,<

moveM,X

writeM,X,<

moveM,L

writeM,L,<

moveM,C

writeM,C,<

moveM,D

writeM,D,<

moveM,M

writeM,M,<

moveM,\_

writeM,\_,<

# write[Char]

## writeI

writeI,|

nextChar,I,>

writeI,\_

nextChar,I,>

## writeV

writeV,|

nextChar,V,>

writeV,\_

nextChar,V,>

## writeX

writeX,|

nextChar,X,>

writeX,\_

nextChar,X,>

## writeL

writeL,|

nextChar,L,>

writeL,\_

nextChar,L,>

## writeC

writeC,|

nextChar,C,>

writeC,\_

nextChar,C,>

## writeD

writeD,|

nextChar,D,>

writeD,\_

nextChar,D,>

## writeM

writeM,|

nextChar,M,>

writeM,\_

nextChar,M,>

# checkForBars

checkForBars,I

checkForBars,I,<

checkForBars,V

checkForBars,V,<

checkForBars,X

checkForBars,X,<

checkForBars,L

checkForBars,L,<

checkForBars,C

checkForBars,C,<

checkForBars,D

checkForBars,D,<

checkForBars,M

checkForBars,M,<

checkForBars,|

barFound,|,<

checkForBars,\_

qfin,\_,>

# barFound

barFound,I

barFound,I,<

barFound,V

barFound,V,<

barFound,X

barFound,X,<

barFound,L

barFound,L,<

barFound,C

barFound,C,<

barFound,D

barFound,D,<

barFound,M

barFound,M,<

barFound,|

barFound,|,<

barFound,\_

removeBars,\_,>