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# LEARN TO PROGRAM

— DEMETER PROJECT —  
IES MAR DE ALBORÁN

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# DEMETER I

## INSTRUCTION SET

TR -TURN RIGHT

TL - TURN LEFT

A - ADVANCE





# DEMETER I

## INSTRUCTION SET. LOOPS

```
WHILE NB  
  Y  
END
```

DEMETER will do Y while there is nothing blocking it.

# DEMETER I



## INSTRUCTION SET. LOOPS

```
FOR X  
  Y  
END
```

DEMETER will do Y X times.



# DEMETER I

## INSTRUCTION SET. LOOPS

- Is an obstacle (tree, stone,...). DEMETER has to avoid it.

Objective: Get into the mined area and  
get out by the exit

**ENTRANCE**



# EXIT

## Exercise 1

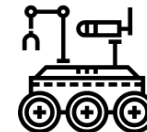

# ENTRANCE



```
WHILE NB
  A
END
TL
FOR 12
  A
END
TR
A
```

SOLUTION (PROGRAM)

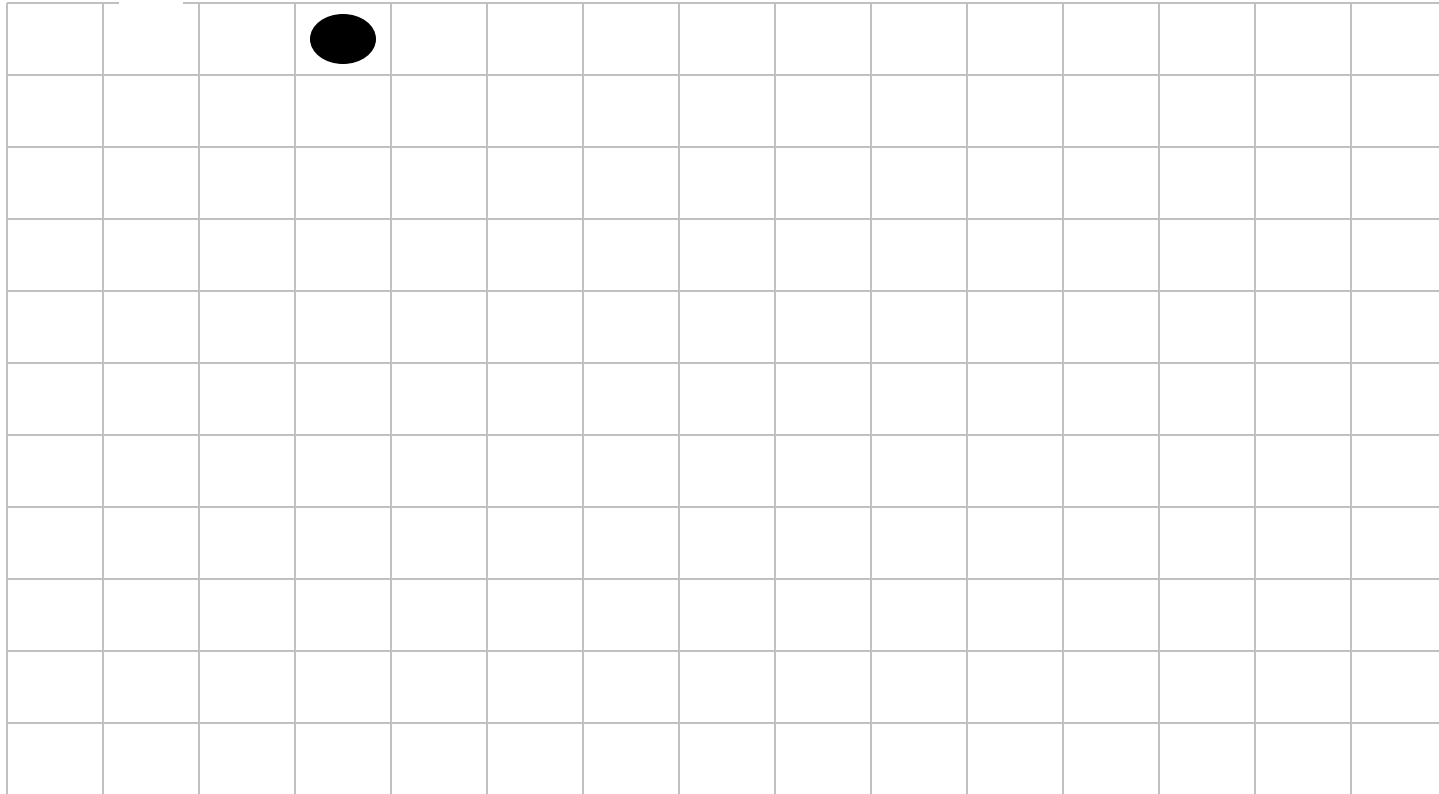
ENTRANCE





**EXIT**

**Exercise 2**

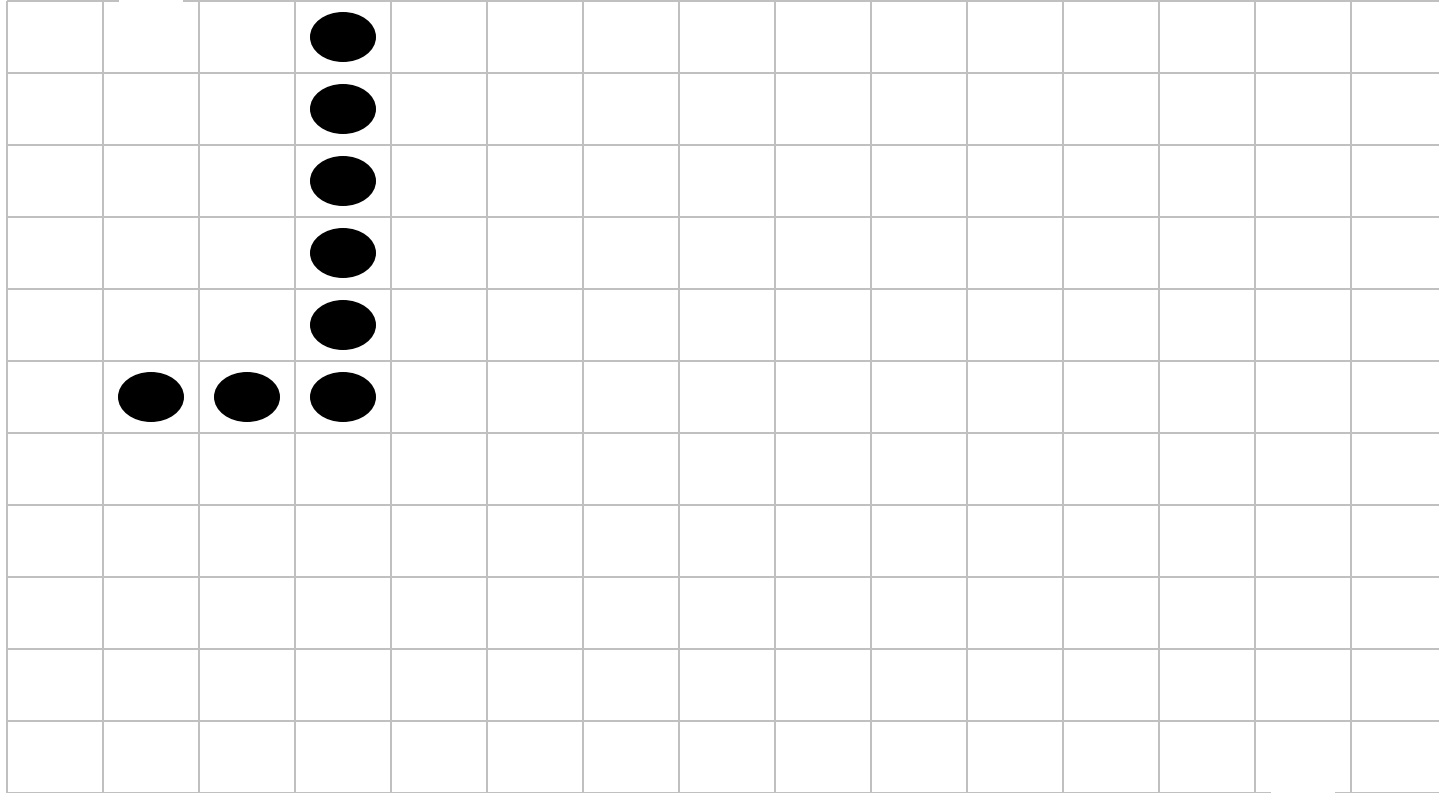


**ENTRANCE**



EXIT

# Exercise 3



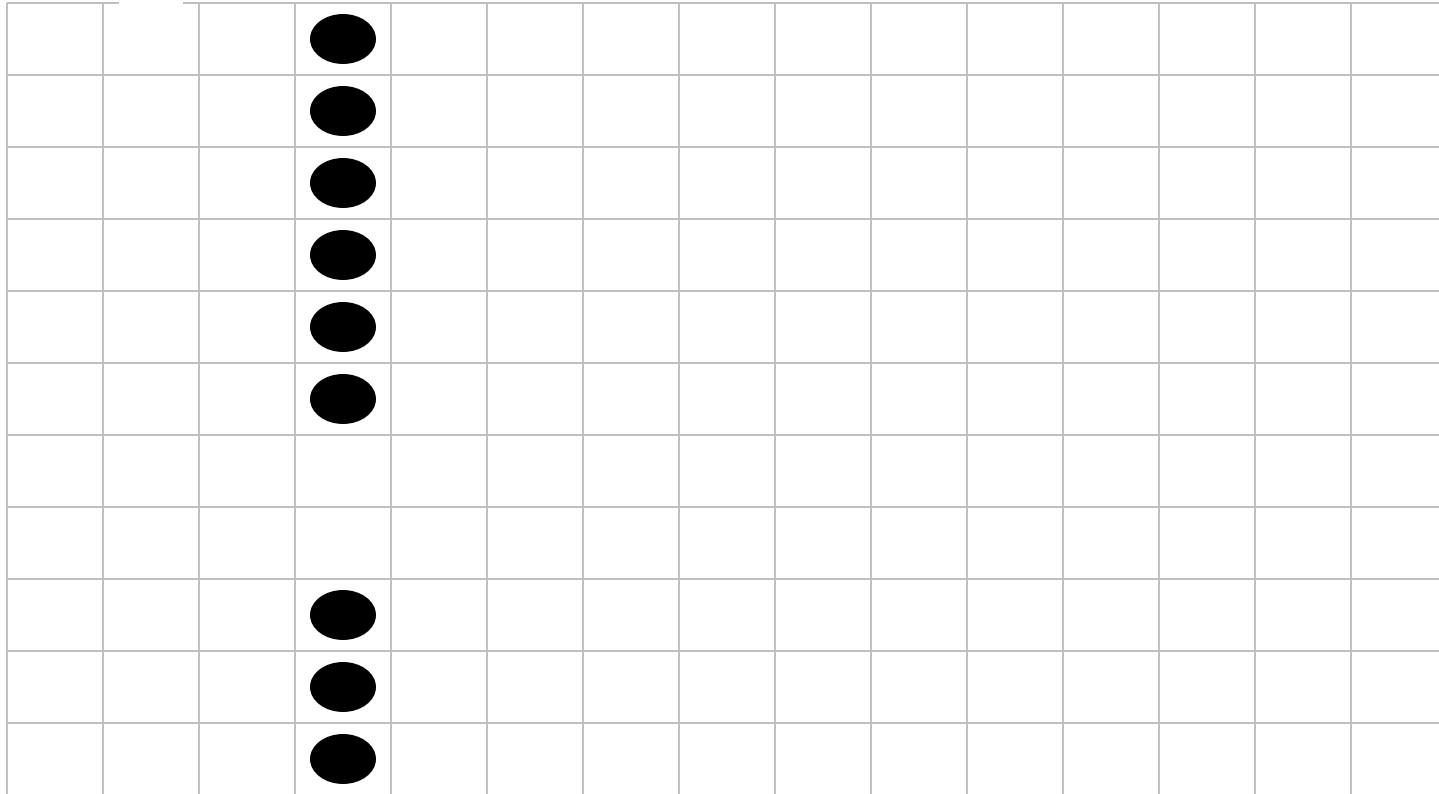
ENTRANCE





**EXIT**

# Exercise 4



**ENTRANCE**





NEW SEQUENTIAL INSTRUCTION



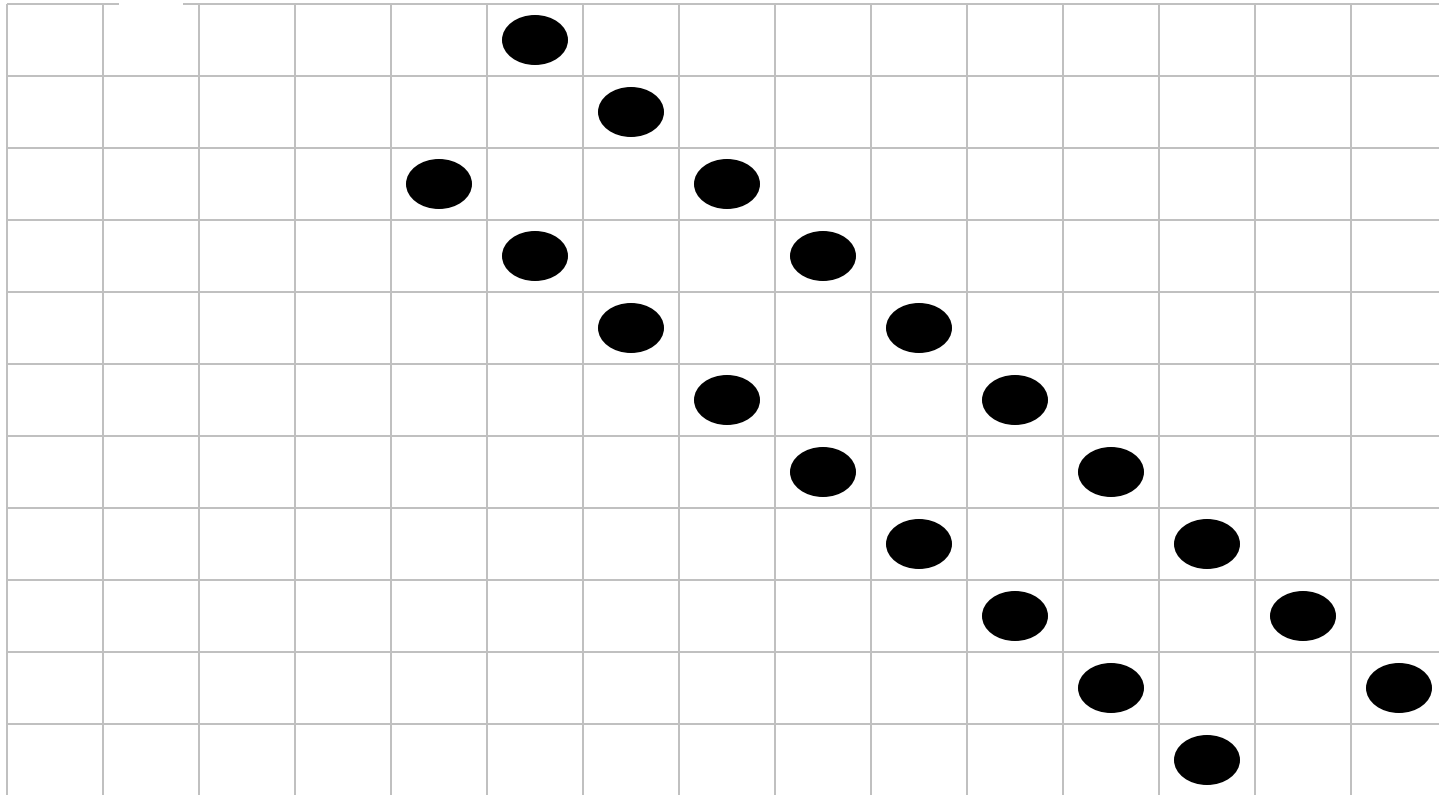
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# DEMETER I
























## NEW INSTRUCTION

- DEACT - Deactivate a mine

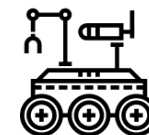


























# ENTRANCE



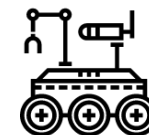
														
														
														
														
														
														
														
														
														
														
														













# ENTRANCE



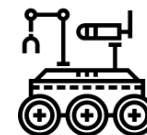
														
														
														
														
														
														
														
														
														
														
														

# ENTRANCE

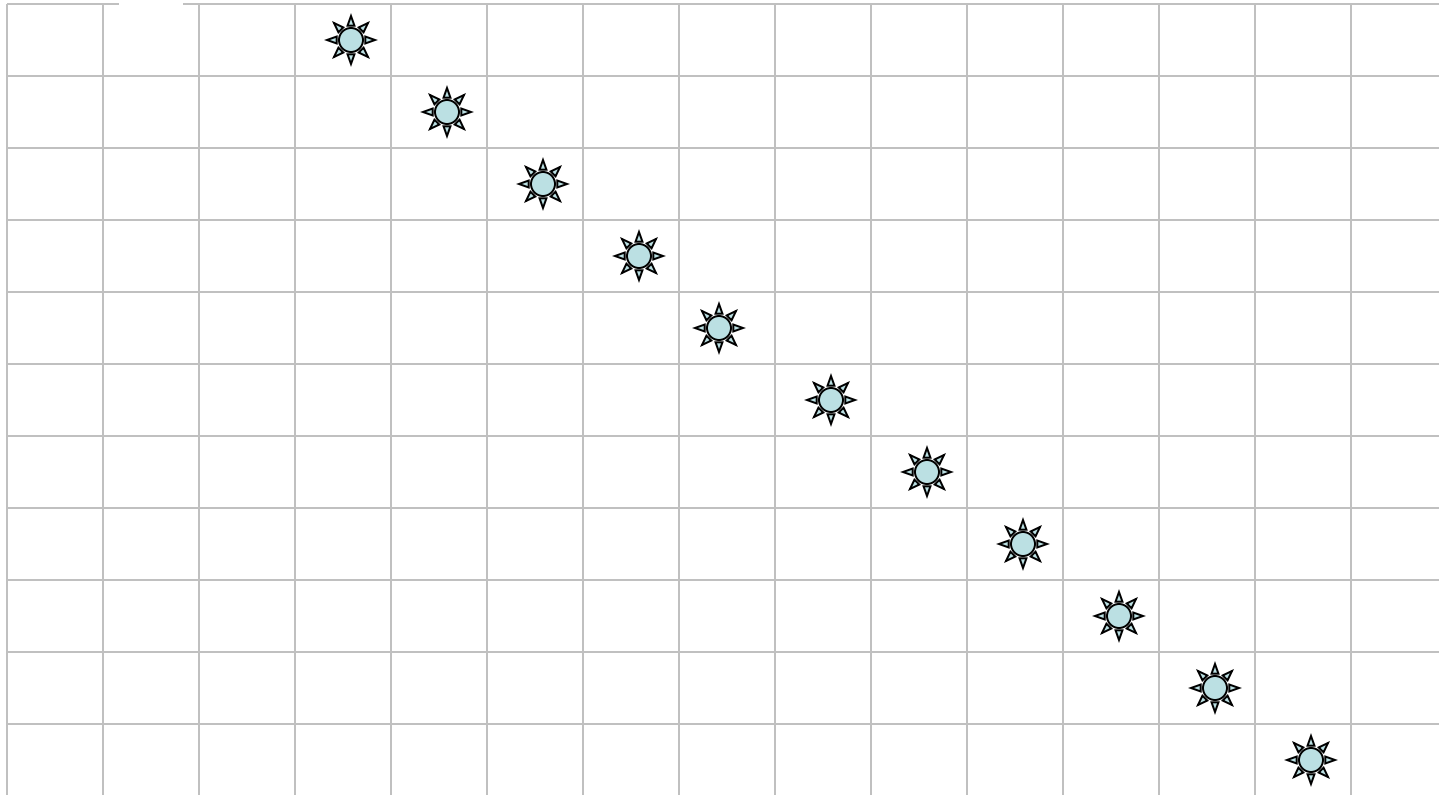


# ENTRANCE

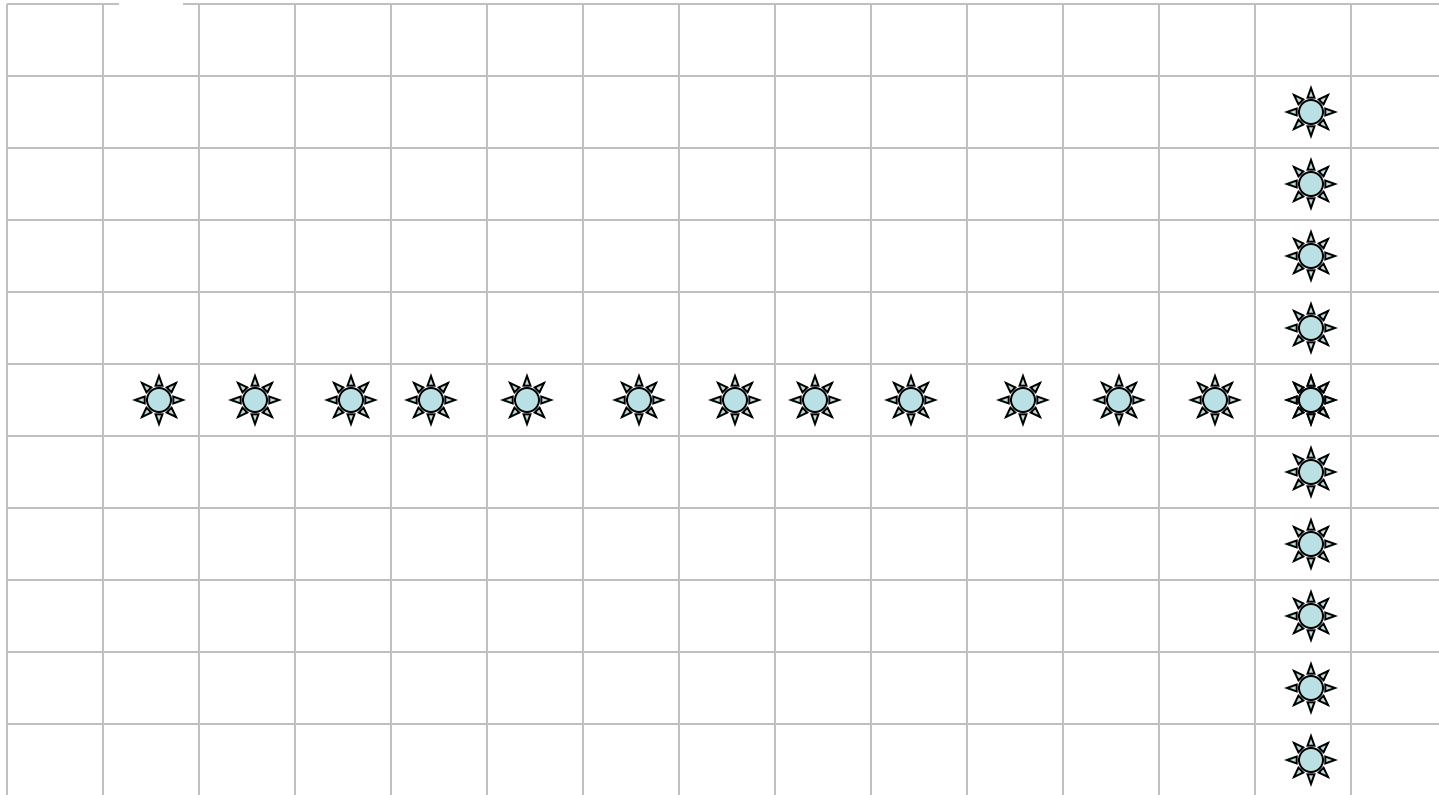






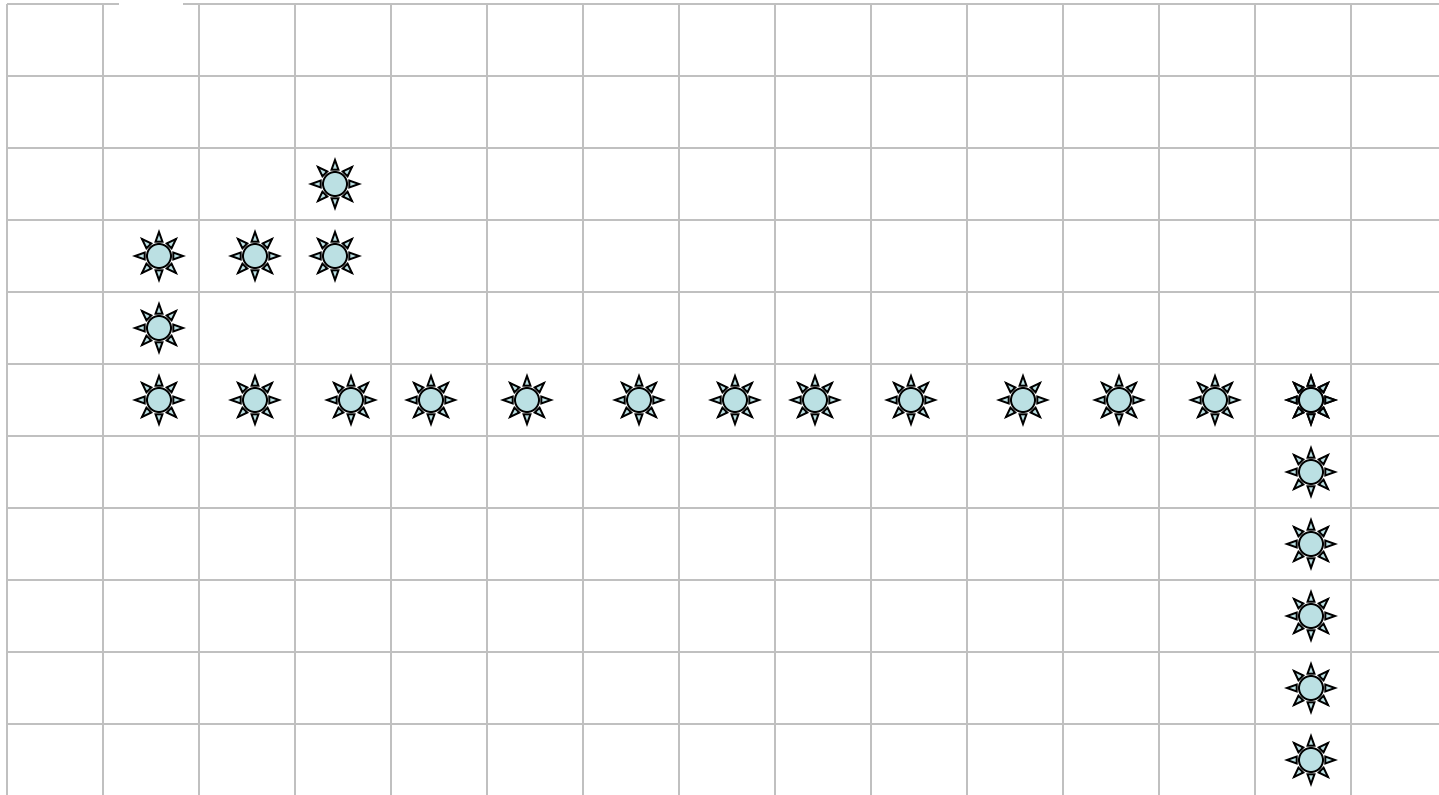
# ENTRANCE





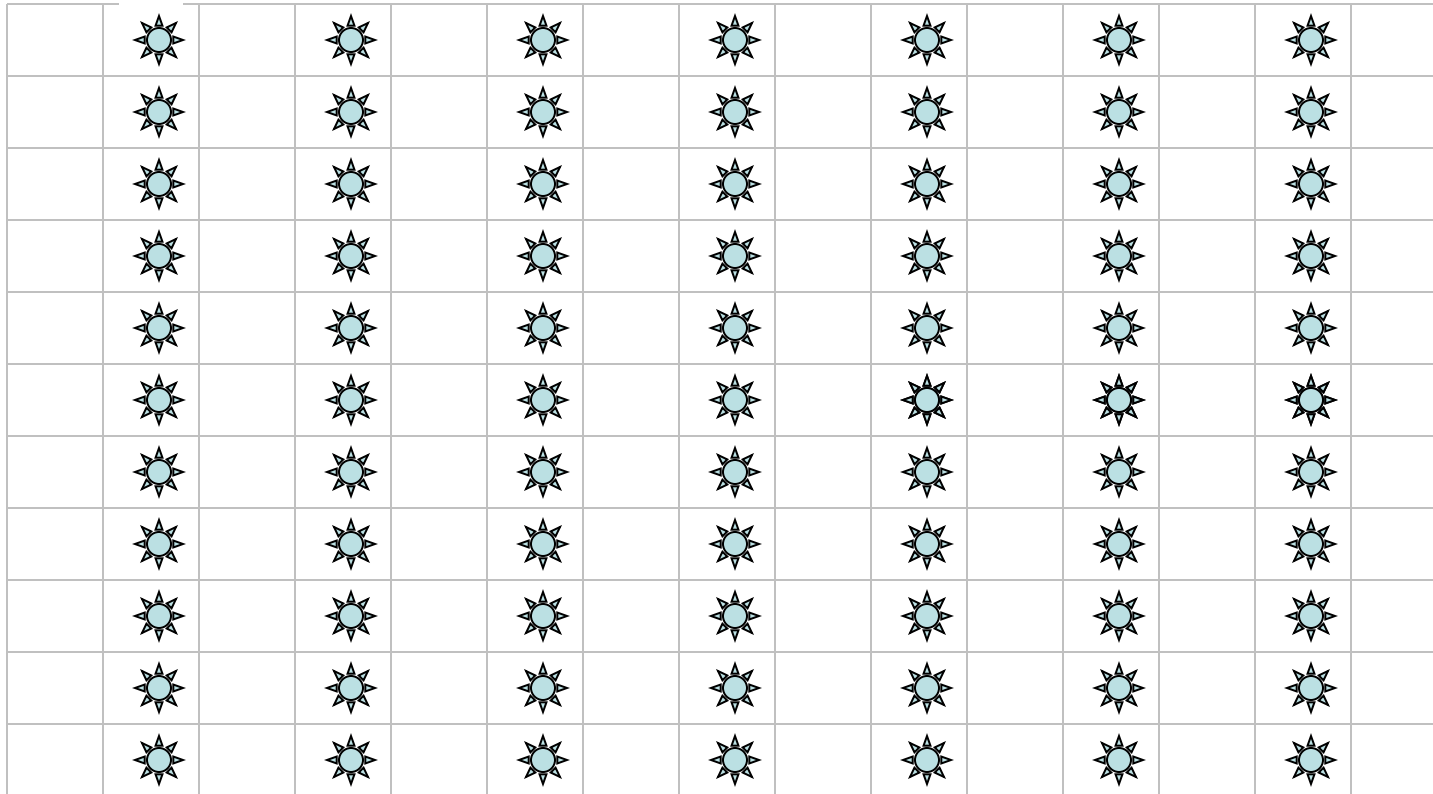
# ENTRANCE





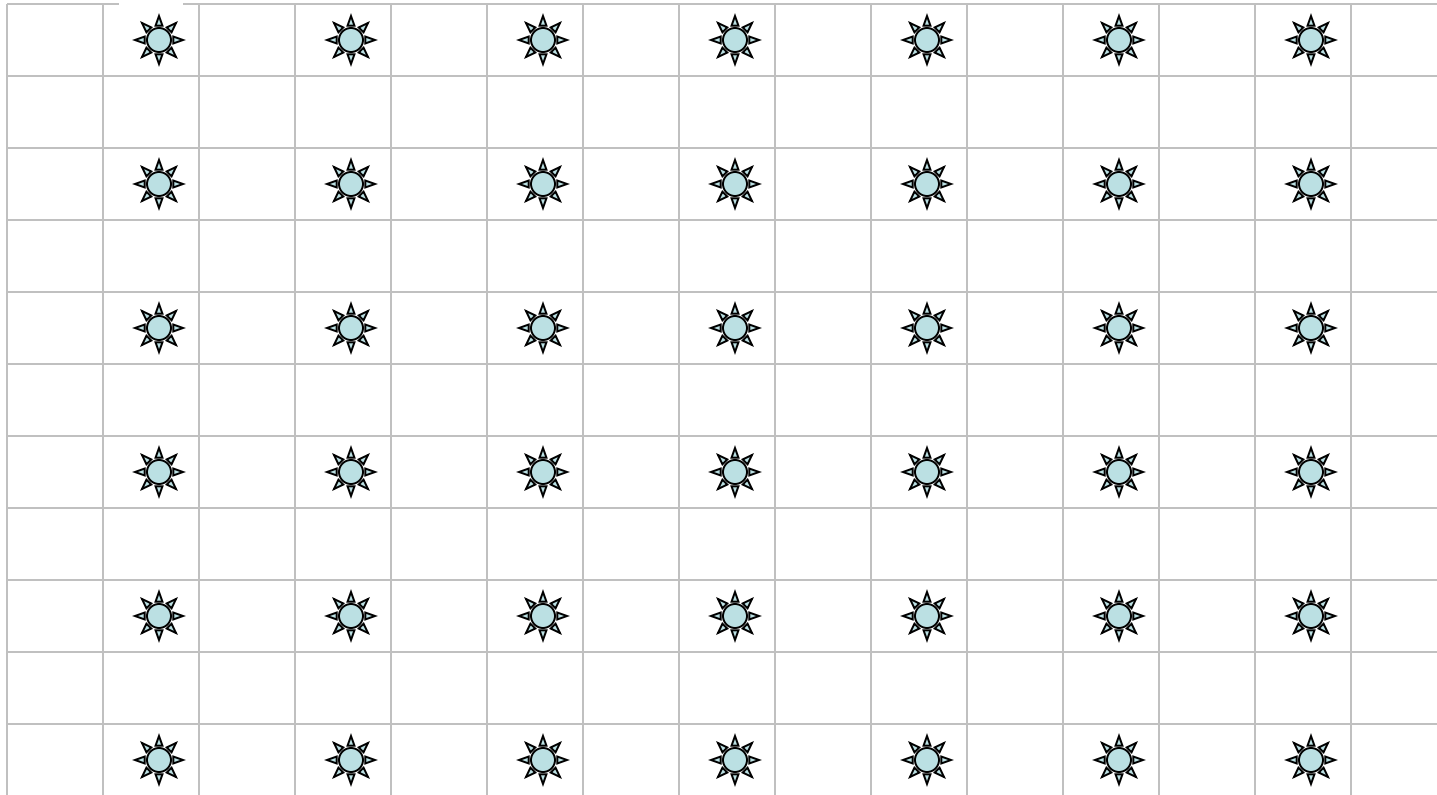
# ENTRANCE





# ENTRANCE





# ENTRANCE





# DEMETER II

## NEW INSTRUCTION SET

- VAR = VALUE
- VAR++
- VAR -
- PRINT VAR

Print X - displays in the remote the number X.



# DEMETER II

## EXAMPLES

- STEPS = 0
- STEPS ++
- STEPS ++
- PRINT STEPS

The former code will display 2 in the remote.



# DEMETER II

## NEW INSTRUCTION SET

```
IF MINE THEN  
  X  
END IF
```

Ask if in the **current** square there is a mine.





# DEMETER II

## NEW INSTRUCTION SET

```
IF MINE NEXT THEN  
  X  
END IF
```

Ask if in the **next** square there is a mine.



# DEMETER II

## NEW INSTRUCTION SET

IF BLOCK THEN

X

END IF

Ask if in the **next** square there is something that will block the rover.



# DEMETER II

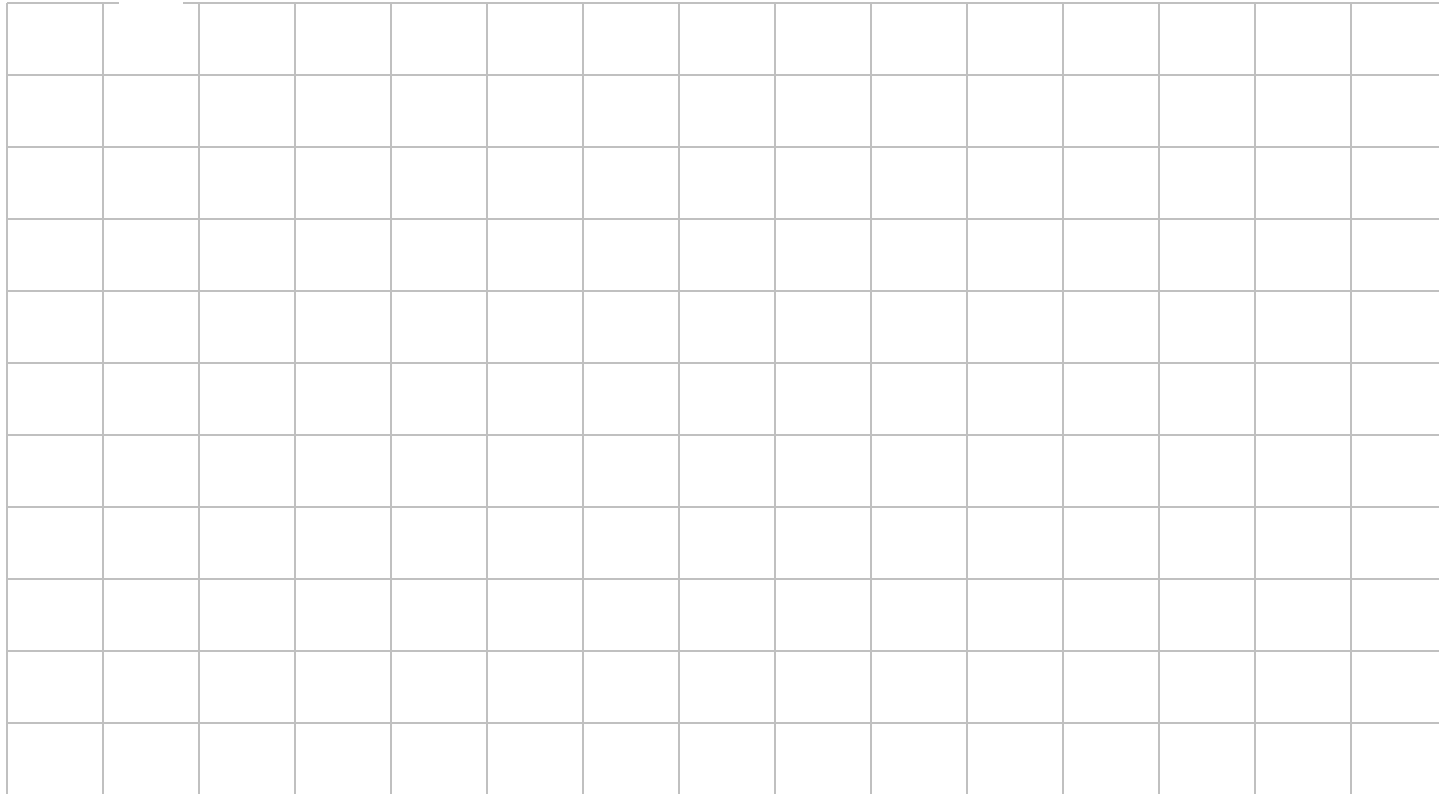
## NEW INSTRUCTION SET

WHILE NW

X

END WHILE

While the next square is not a wall, execute instruction x.



**Objective: Show in the remote the number of squares passed.**

**ENTRANCE**





**EXIT**

# Exercise 15



**Objective: Show in the remote the number of squares passed.**

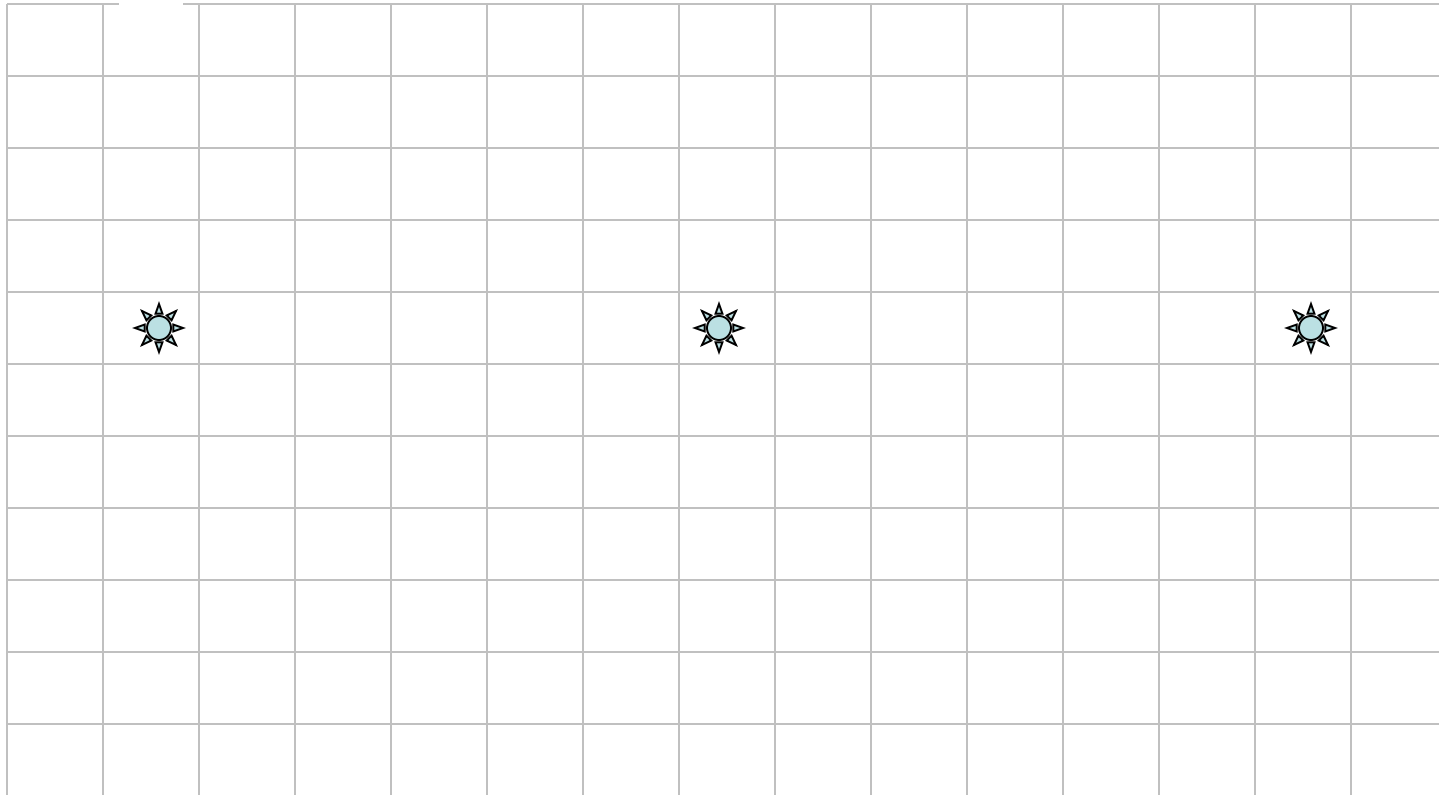
**ENTRANCE**





**EXIT**

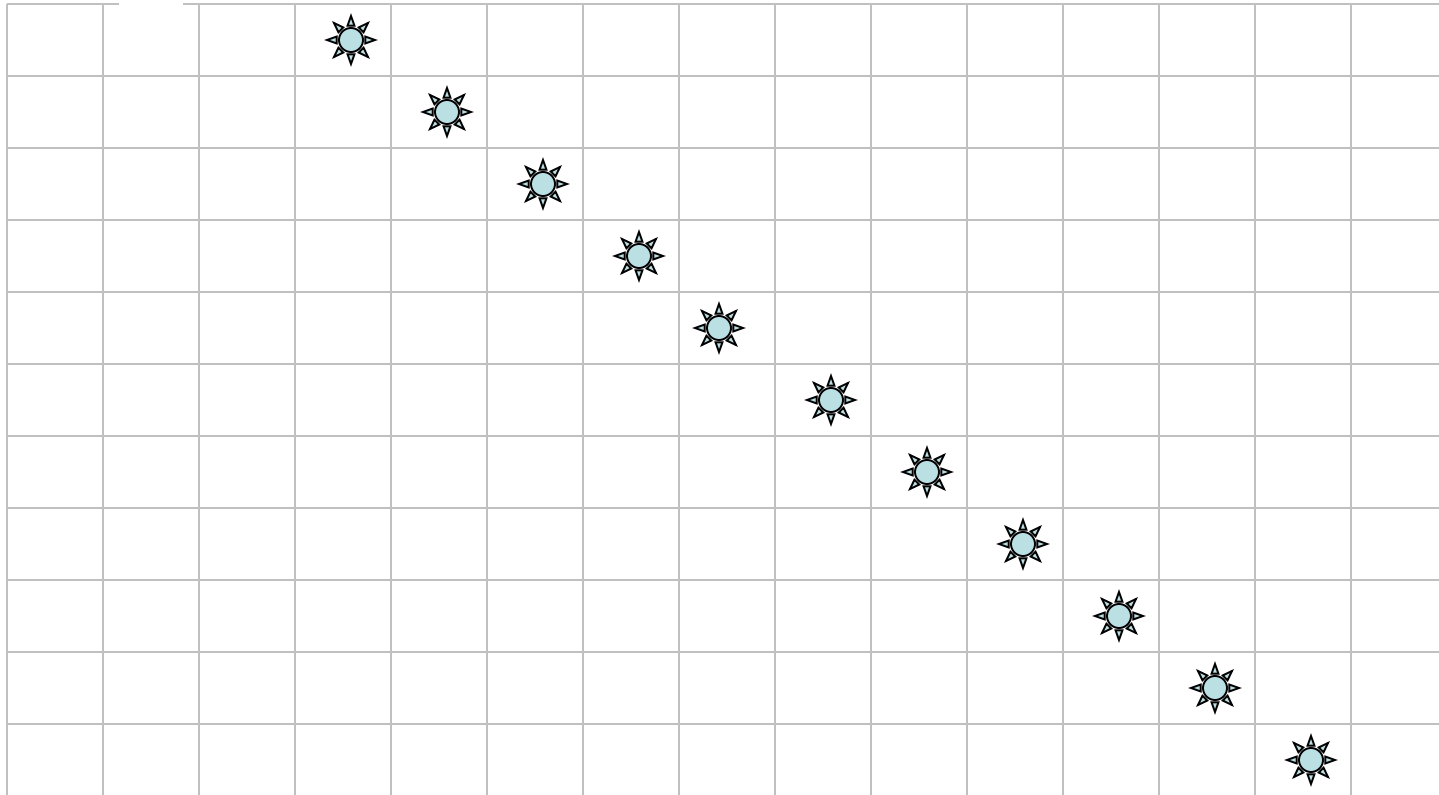
# Exercise 16



**Objective: Show in the remote the number of squares passed.**

**ENTRANCE**

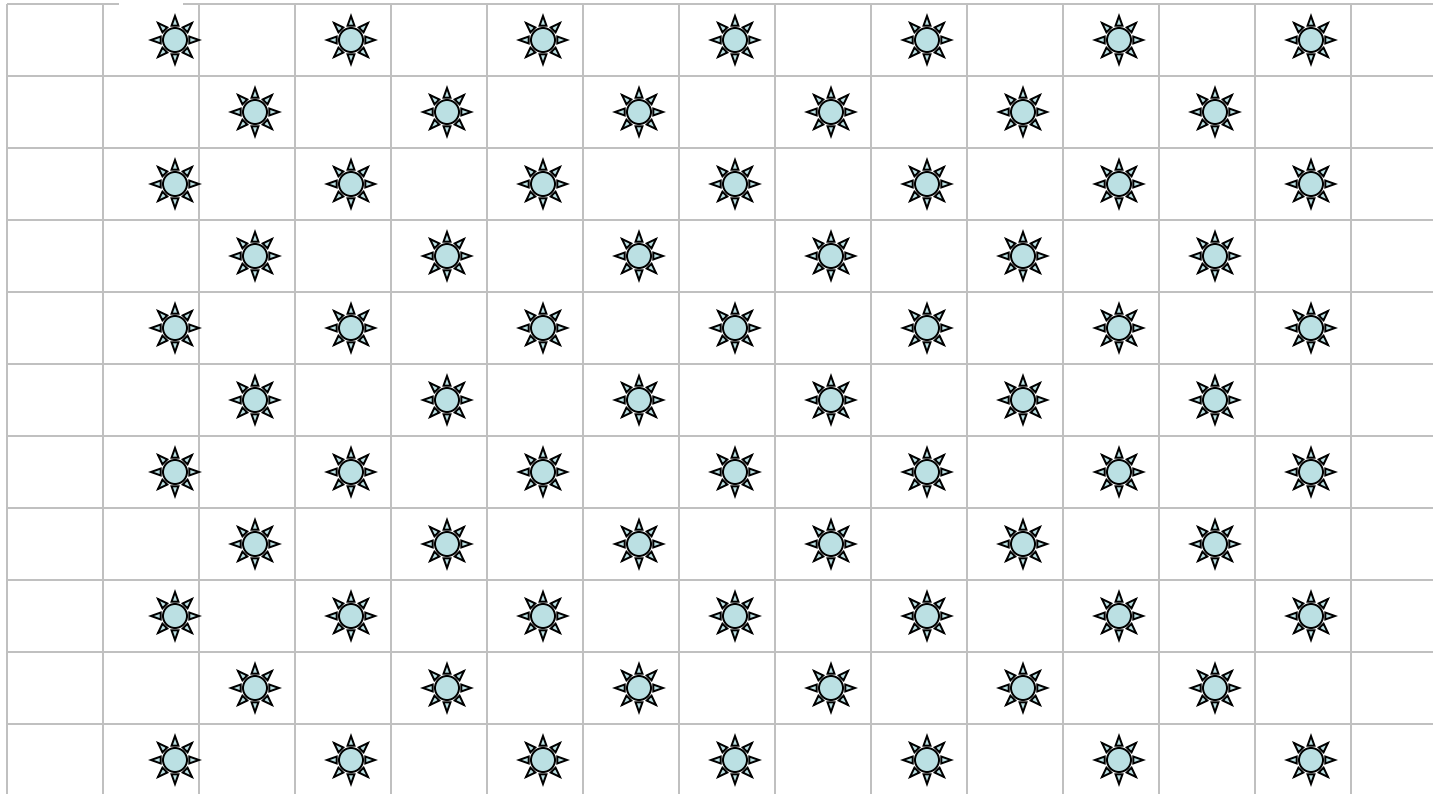




**Objective: Show in the remote the number of squares passed and the number of mines deactivated.**

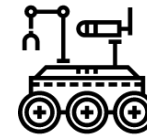
### ENTRANCE



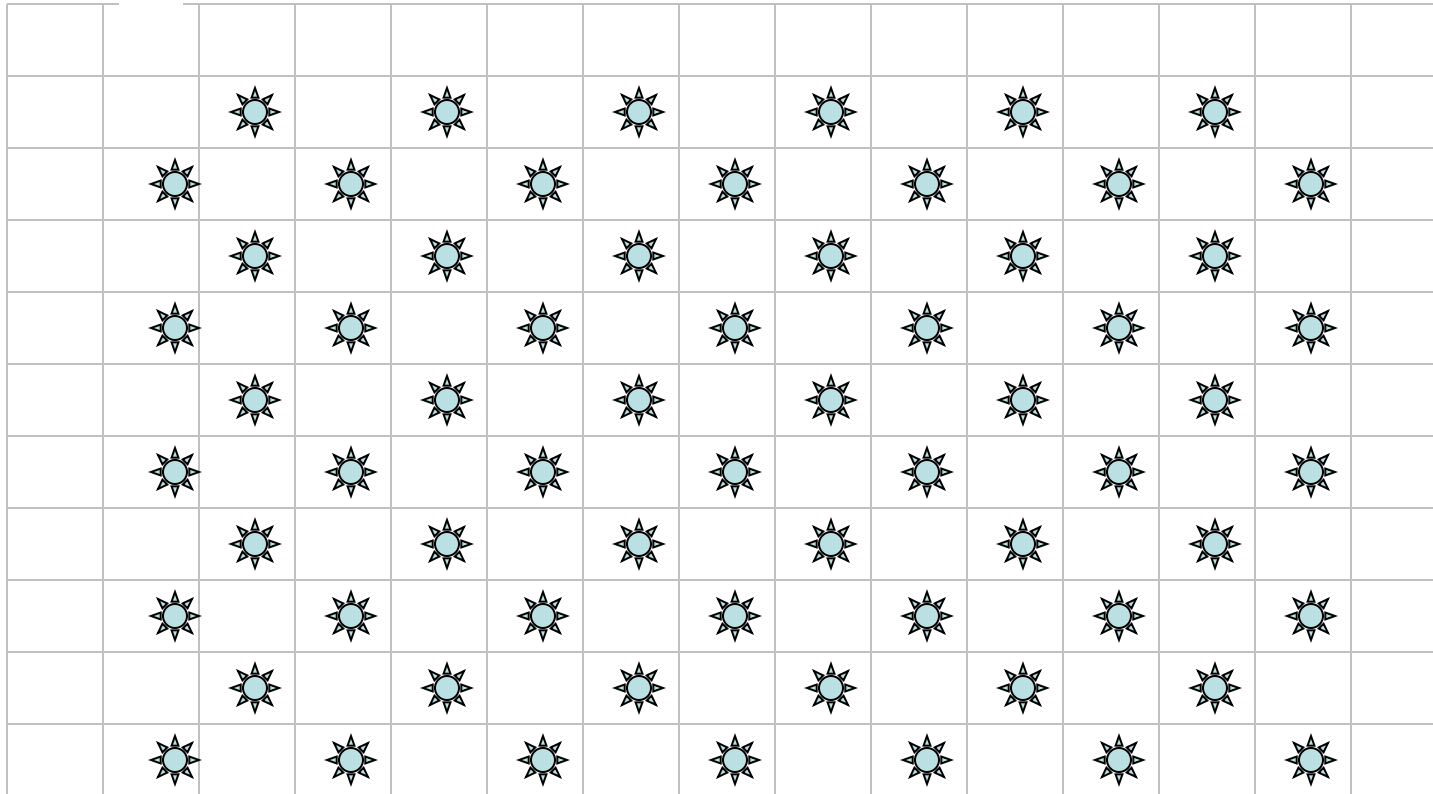


**Objective: Show in the remote the number of mines deactivated.**

# ENTRANCE







**Objective: Show in the remote the number of mines deactivated.**

# ENTRANCE

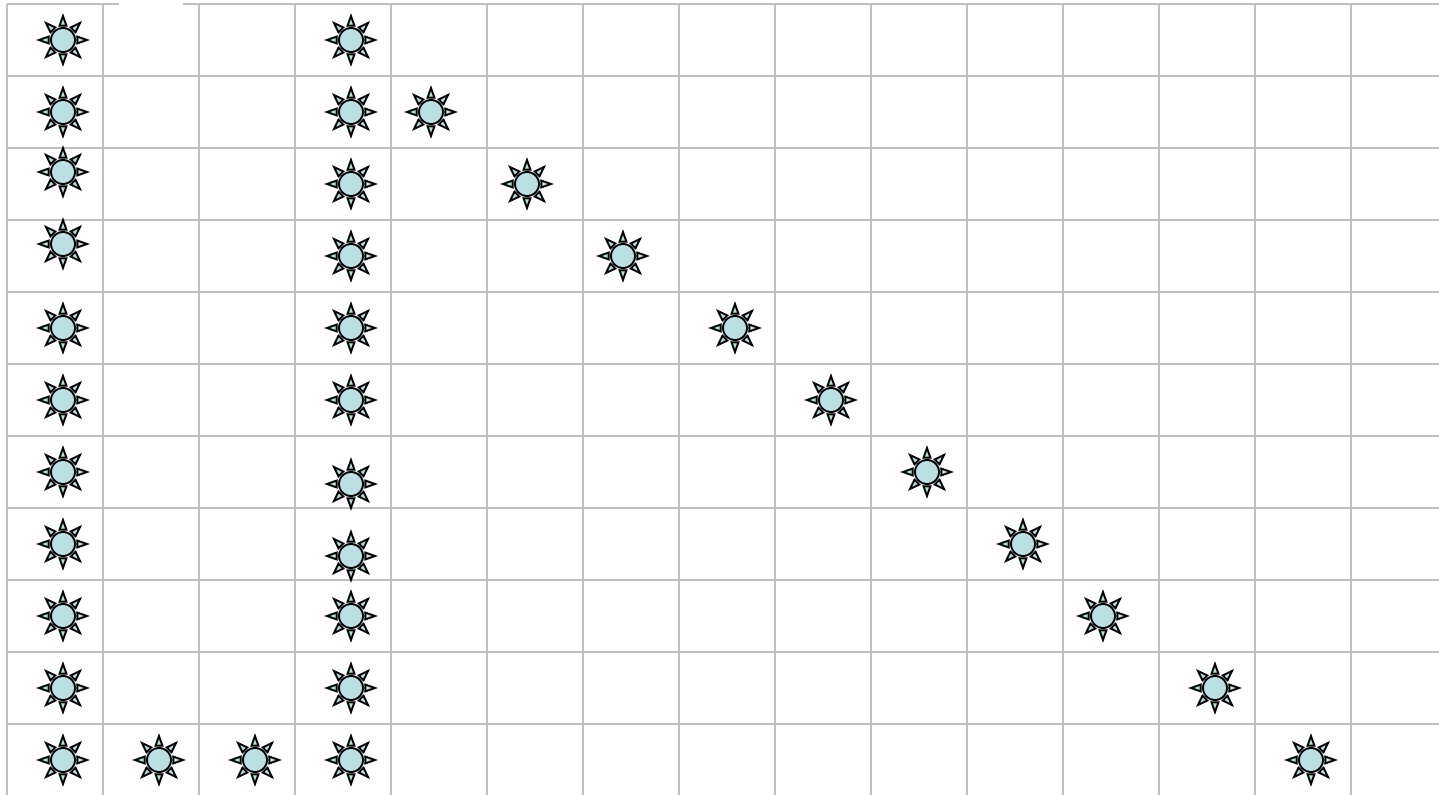


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	☀		☀		☀		☀		☀		☀		☀	

**Objective: Show in the remote the number of mines deactivated.**

# ENTRANCE

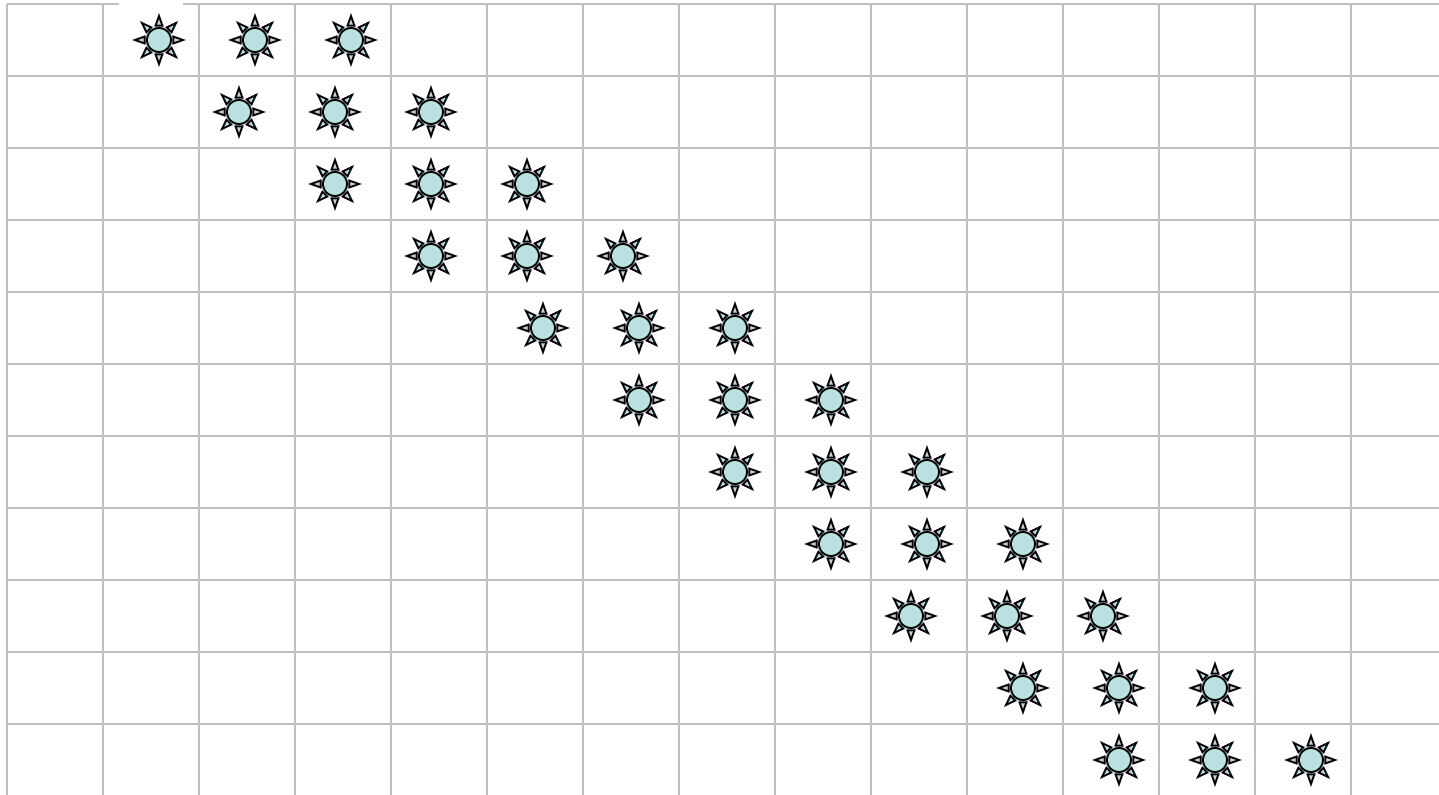




**Objective: Show in the remote the number of mines deactivated.**

### ENTRANCE

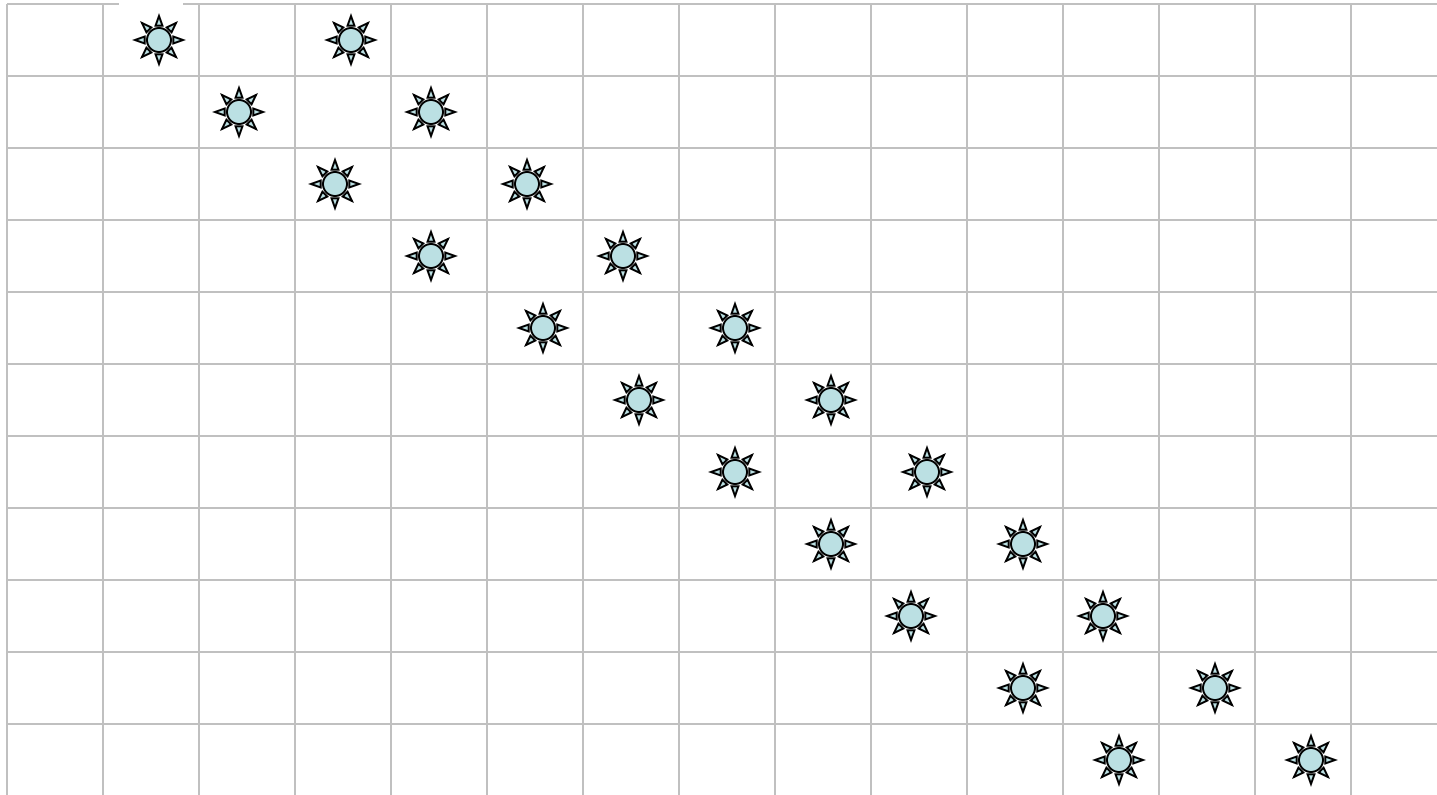




**Objective: Show in the remote the number of mines deactivated.**

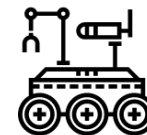
# ENTRANCE



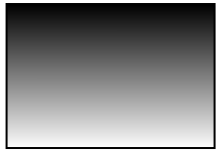


**Objective: Show in the remote the number of mines deactivated.**

# ENTRANCE

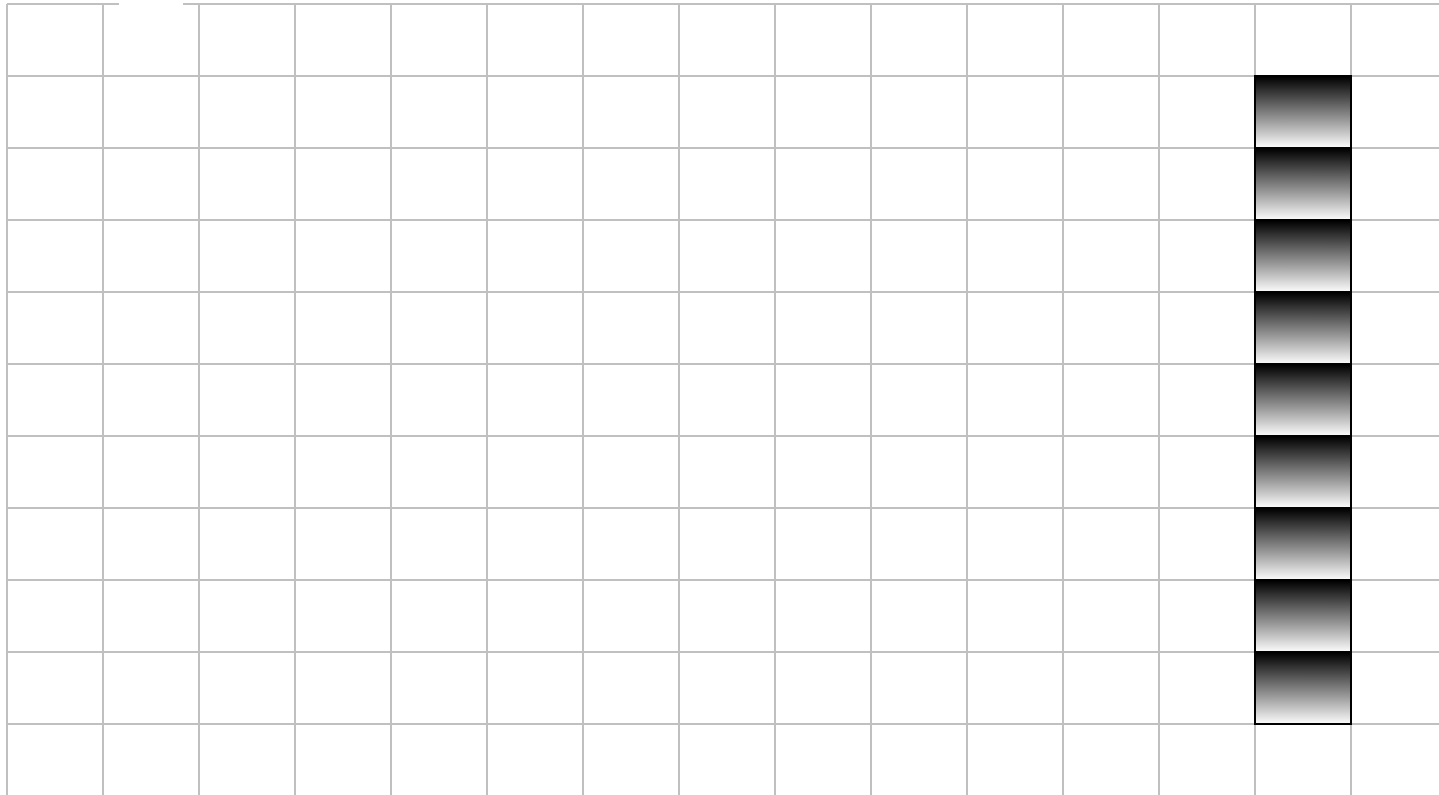


# DEMETER has problems!!!



In this square could be a mine  
or an obstacle. DEMETER has  
to ask in advance.

**REMEMBER THIS COMMANDS  
IF MINE NEXT THEN..... END IF  
IF BLOCK THEN ..... END IF**



**Objective: show in the remote how many squares passed and mines has the rover deactivated.**

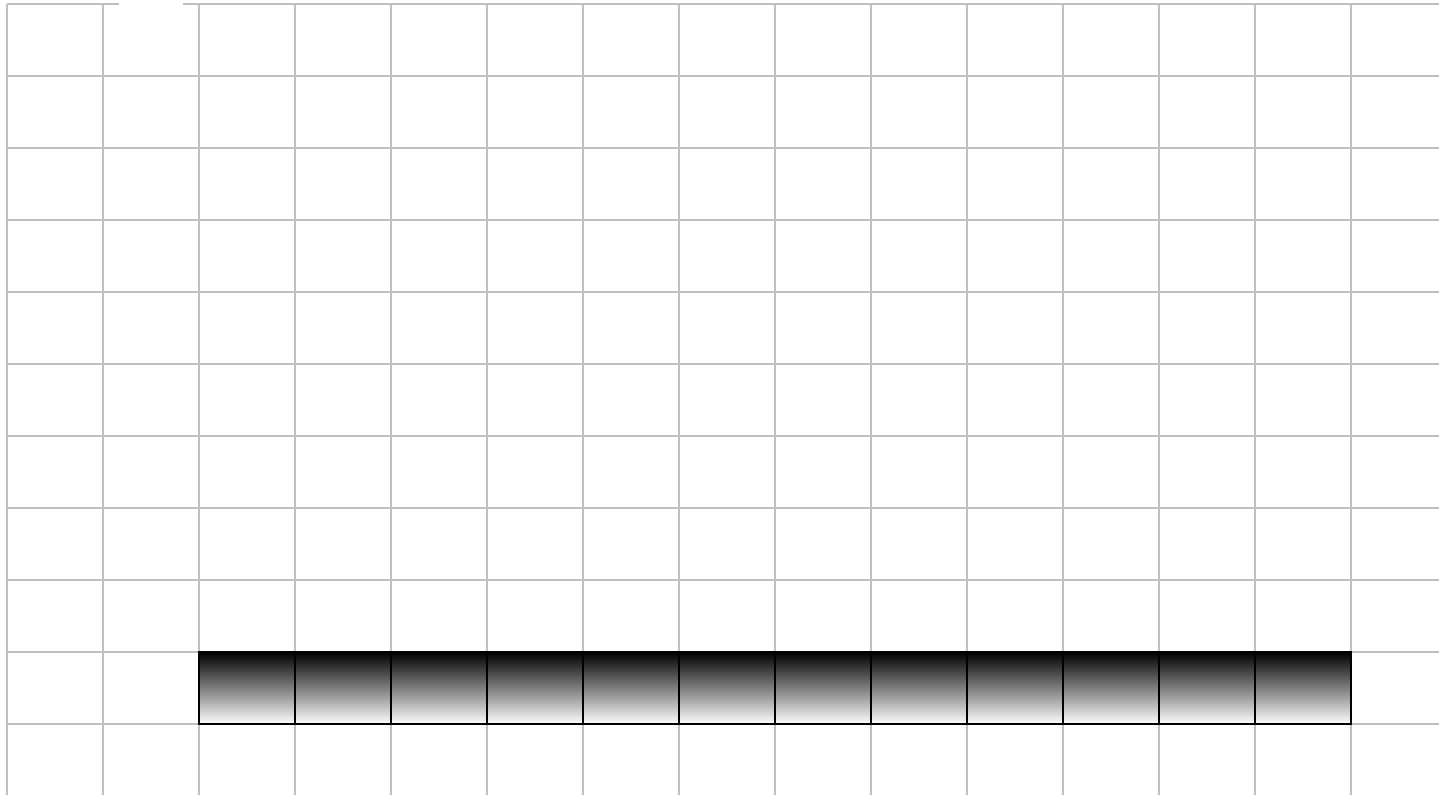
**ENTRANCE**





EXIT

# Exercise 25



**Objective: show in the remote how many squares and passed and mines has the rover deactivated.**

ENTRANCE

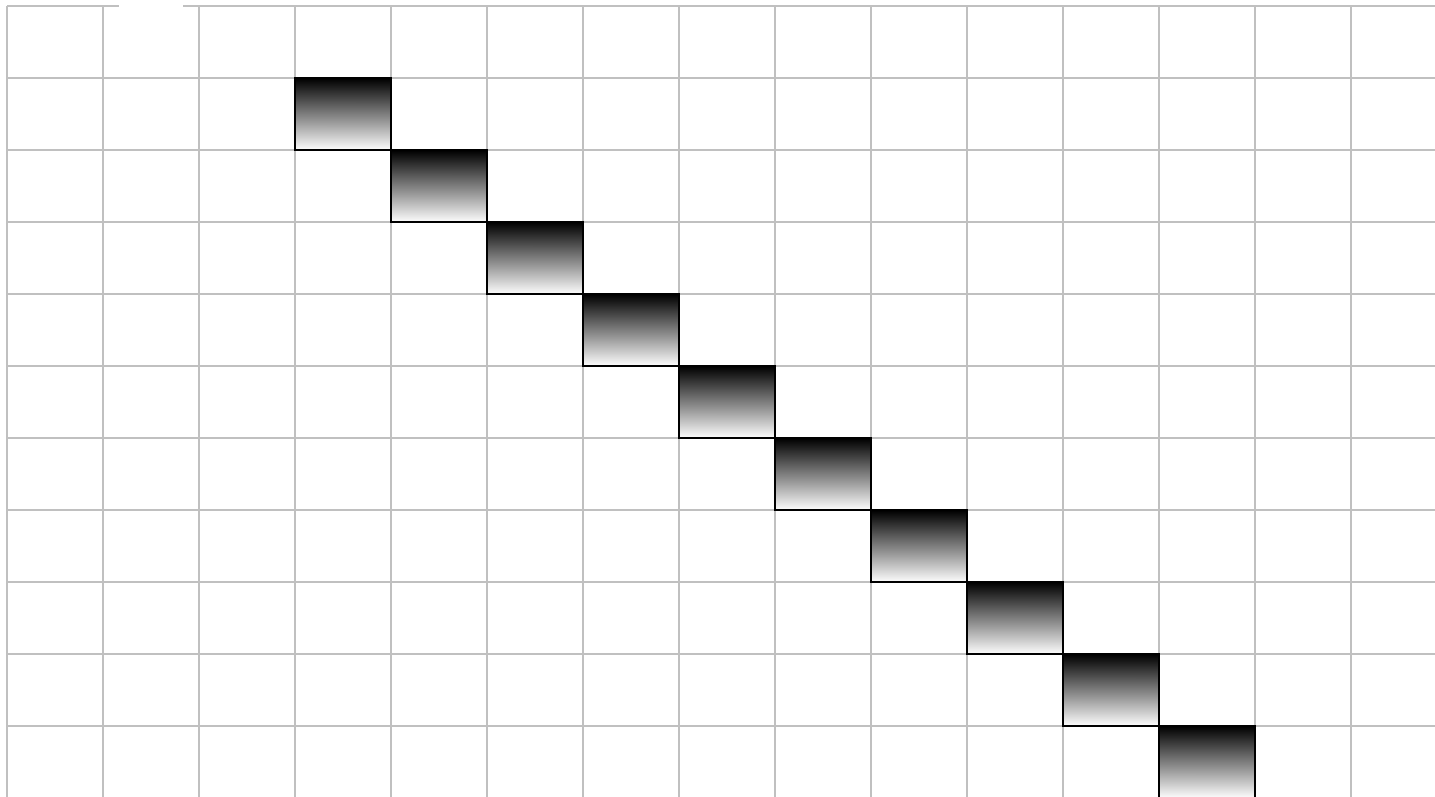






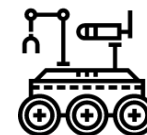
EXIT

# Exercise 26



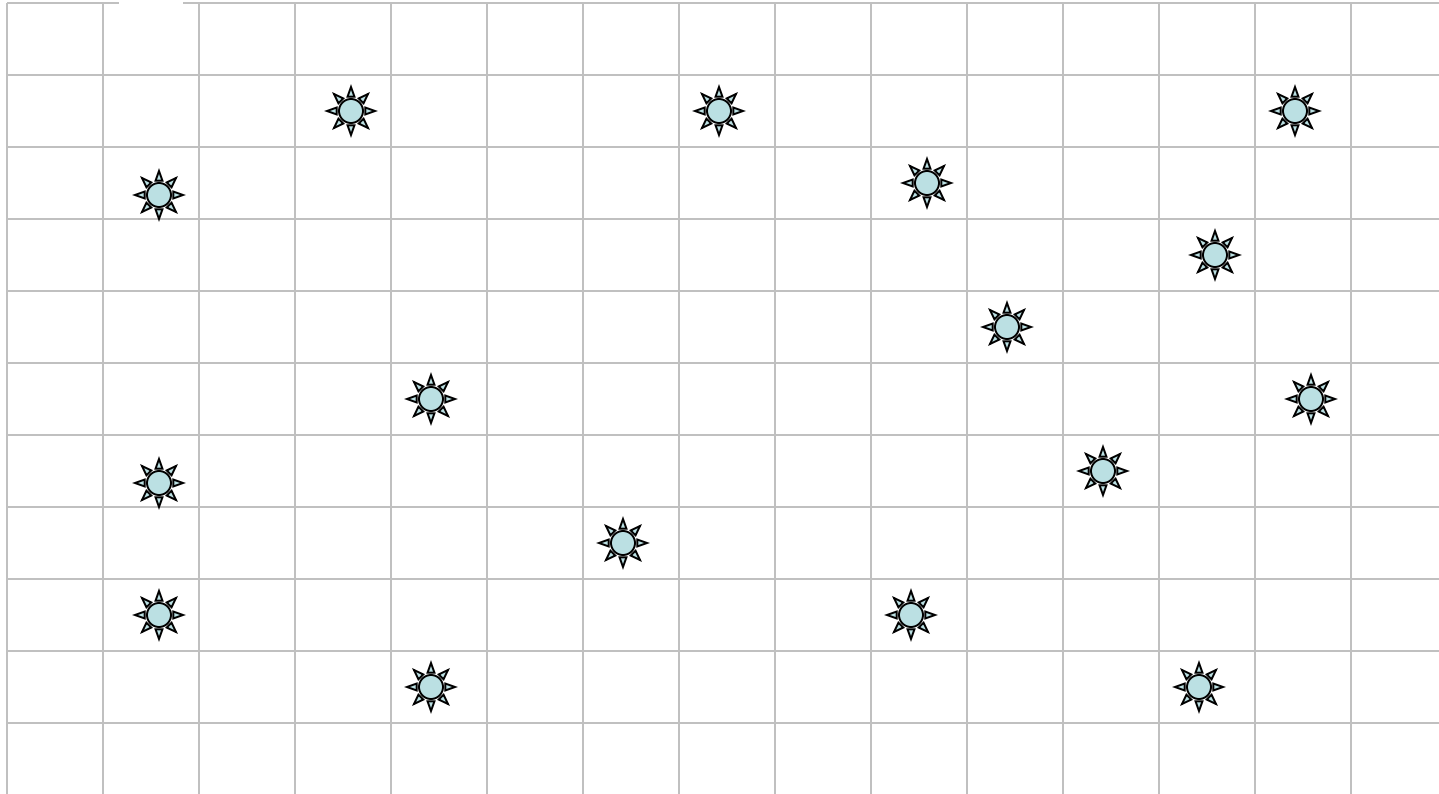
**Objective: show in the remote how many squares and passed and mines has the rover deactivated.**

ENTRANCE



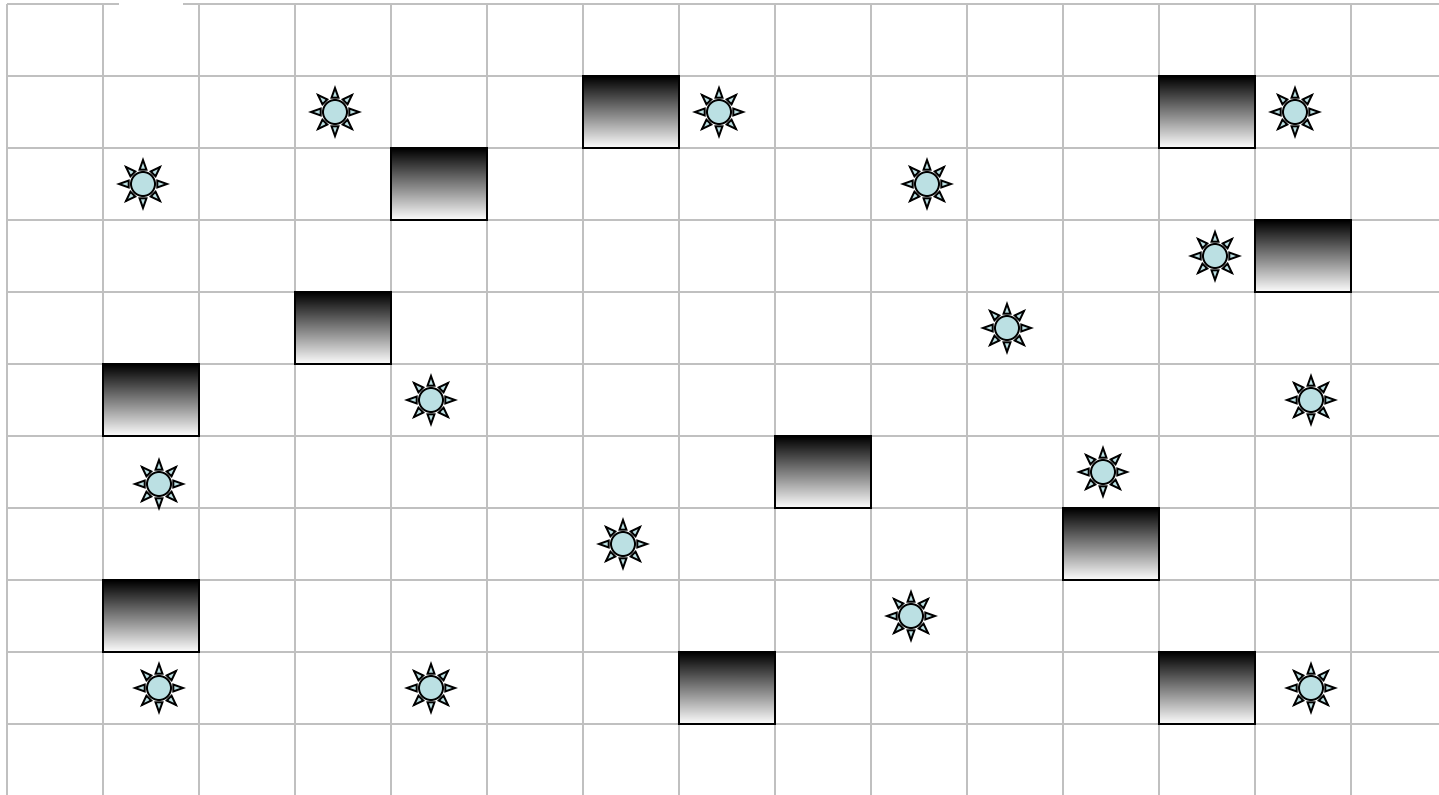
EXIT

# Exercise 27



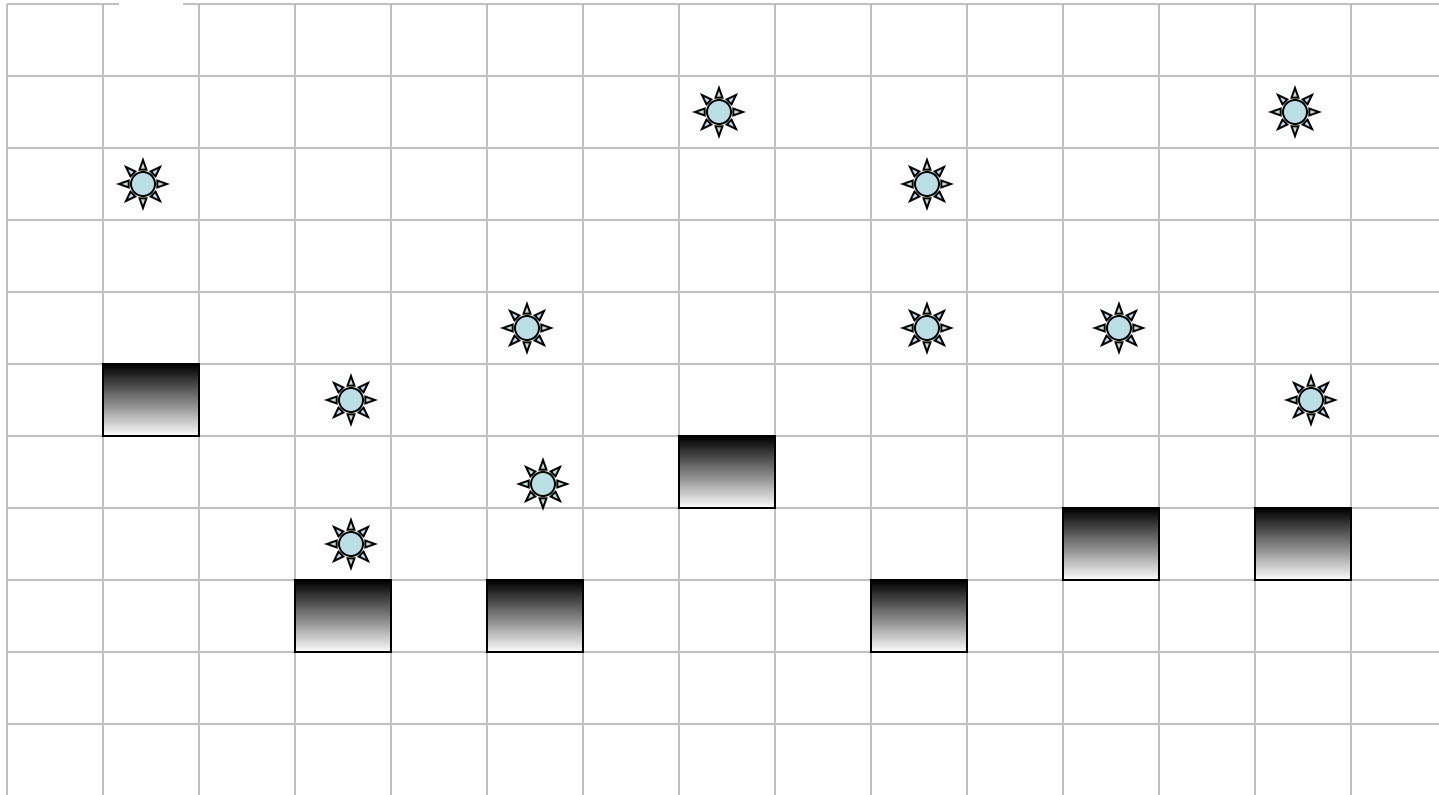
ENTRANCE





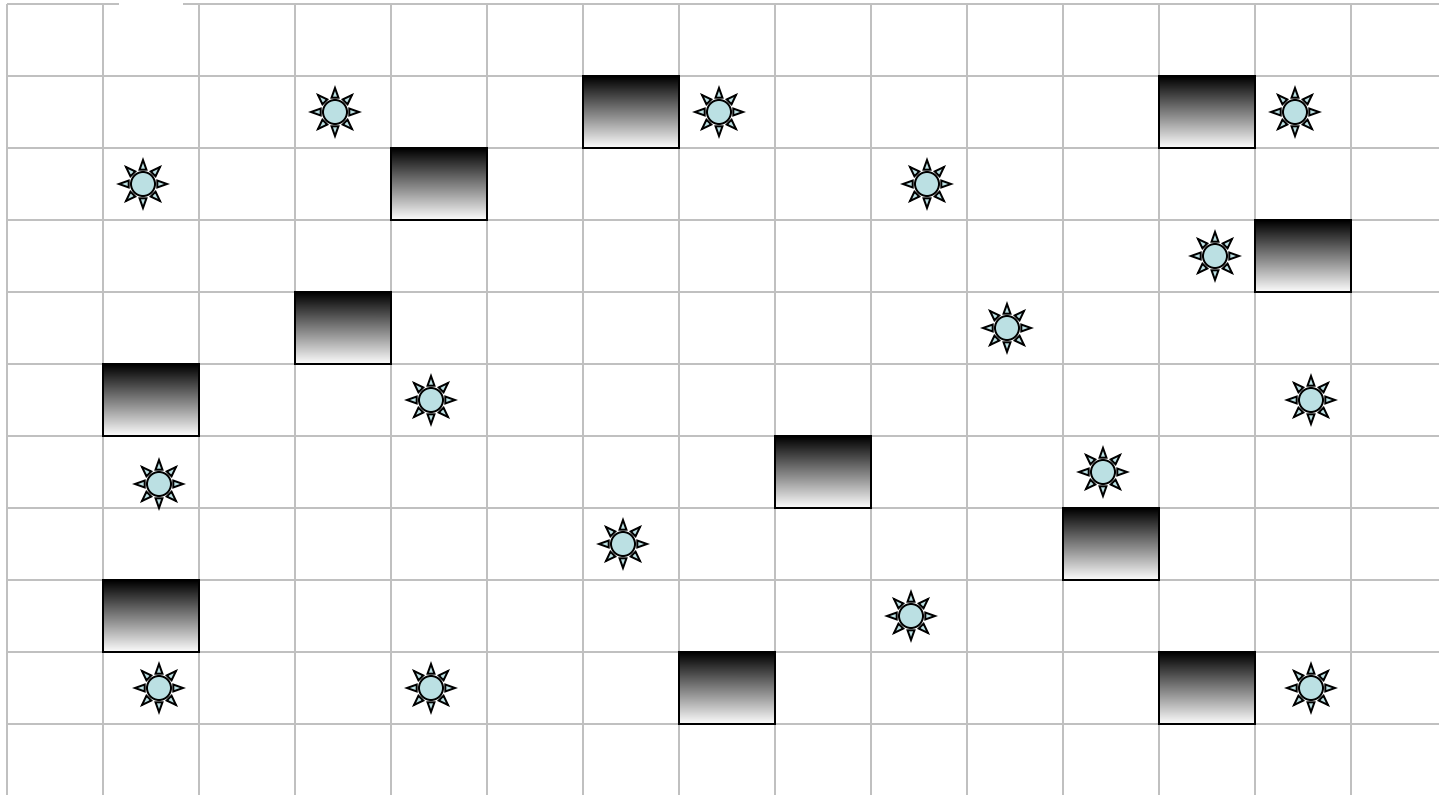
# ENTRANCE





# ENTRANCE





# ENTRANCE

