

# Level 3





# Asteroids might be rotated

- For each asteroid, dig tunnels that discover every cell
  - "discover every cell" is explained on the next slide
- Either the **width** or the **height** of the minable rectangle is guaranteed to be 3
- The other dimension is any integer between 3 and 199 (inclusive)
- The outpost is now **anywhere in the first row** of the asteroid
- A dig limit is given
- Your tunnels must not have more dug cells than the dig limit
- The given dig limit requires an **optimal solution**



There is a [visualizer.html](#) in the input folder.  
You can use it to visualize your solutions.





# Valid Tunnel Layout

## Checklist

- ✓ **Discover every cell:** Each cell inside the minable rectangle must either be a tunnel, or be adjacent to a tunnel
- ✓ Your tunnels may branch at any point, but must be connected to the outpost as well as to each other
- ✓ Diagonals do not count as adjacent or connected
- ✓ Bedrock cannot be dug
- ✓ Your tunnels must not have more cells than the dig limit





# Input

Name		Description	Example
N		Number of asteroids	2
repeated N times	Minable rectangle size and <b>dig limit</b>	The width and height of the minable rectangle followed by the dig limit, separated by a spaces	3 5 6 #S### #:::# #:::# #:::# #:::# #:::# #####
	Character representation	A paragraph of characters ‘#’ represents bedrock ‘.’ represents a minable cell ‘S’ represents the outpost	5 3 6 ####S## #:::::# #:::::# #:::::# #####
	Empty line between asteroids		

# Output

Name		Description	Example
Character representation (repeated N times)		A paragraph of characters '#' represents bedrock '.' represents a minable cell 'S' represents the outpost 'X' represents a tunnel cell	#S### #XX:# #:X:# #:X:# #:X:# #:X:# #####  ####S## #:::X:# #XXXXX# #:::::~# #####
Empty lines between asteroids are recommended but optional			



# Happy Mining!



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