

Part A: Questions 1 – 6

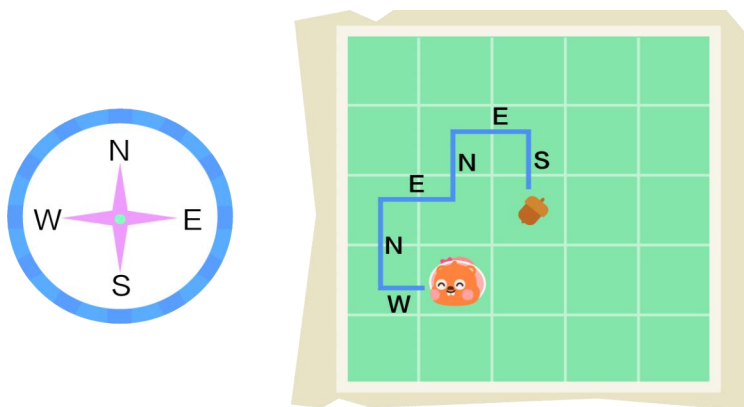
Part A: Questions 1–6

Multiple Choice Questions (3 points each)

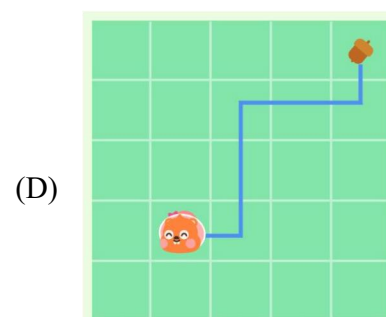
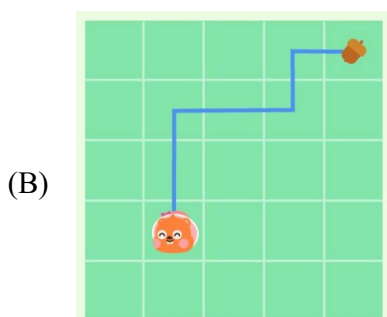
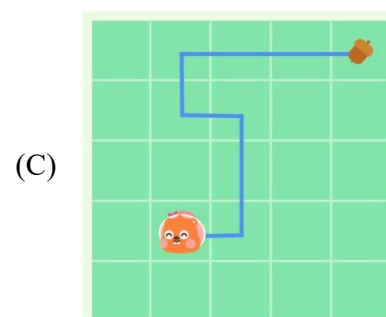
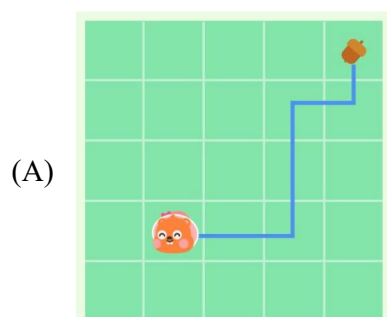
1. The Squirrel Gathering Pine Cones

A squirrel is collecting pine cones in the forest. His mother gave him a compass, as shown in the bottom left image, and a note with instructions on which directions to follow to find the pine cones.

For example, with directions "WNENES," the squirrel's path is as shown in the bottom right image.



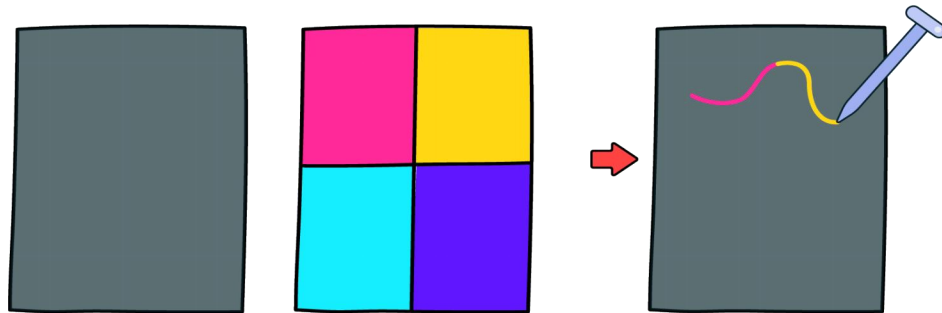
This time, the instructions given by the mother are "NNEENE." Which of the following shows the correct path?



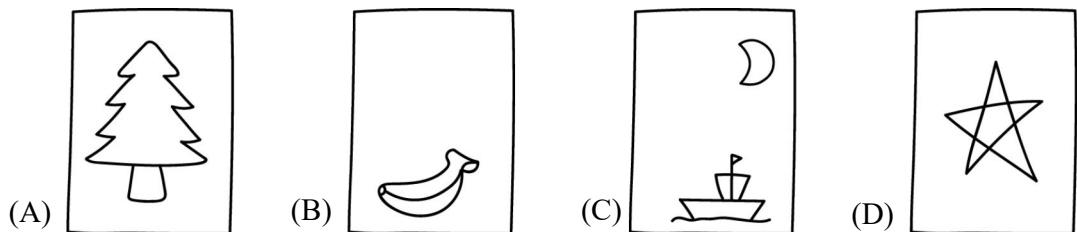
2. The Magic Scratch Art

Scratch art paper has a black coating on the surface, with bright colors underneath. By using a sharp object to remove the black layer, you can reveal the colors below and create a beautiful picture.

The paper has four hidden colors underneath. We initially see black scratch art paper, but when the coating is scratched, the underlying colors are revealed.



Which of the following pictures will show three colors when scratched?

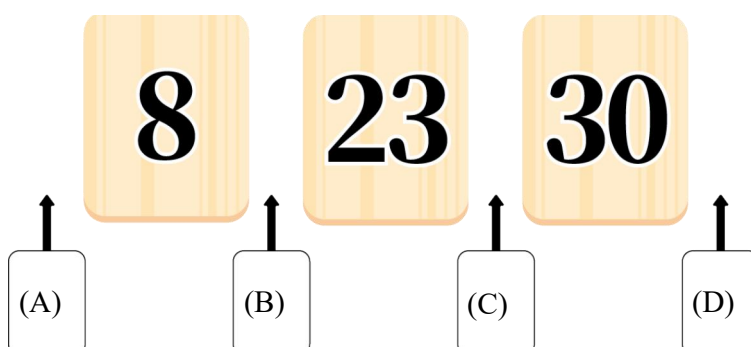


3. Sorting Building Blocks

A child is picking blocks numbered from 1 to 30 from a basket and wants to arrange them in ascending order.

He devised a method: first, he picks a block and places it on the table. Then, if the next block has a larger number, he places it to the right; if it has a smaller number, he places it to the left.

He has already placed three blocks. Now he picks up block number 19. Where should he place it?



4. Guess My Name



A fox has created a Rune-based name by transforming the letters of its real name according to the table below.

ƒ	U/V	th	A	R	<	X	P
F	U/V	th	A	R	K/C	G	W
H	t	l	Y	i	P	Z/X	S
H	N	li	Y	i	P	Z/X	S
↑	B	M	M	L	ng	O	D
T	B	E	M	L	ng	O	D

If its Rune name is as shown, what is the fox's real name?



(A) mfd





(B) dae

(C) dfe

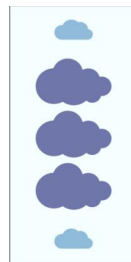
(D) dam

5. Weather Forecast

In the animal world, cloud signals are used to indicate weather. Different sizes of clouds represent different weather conditions.

			
暴雨	小雨	多云	晴朗
Heavy Rain	Light Rain	Cloudy	Sunny

One day, a monkey on the island saw the following pattern of clouds:

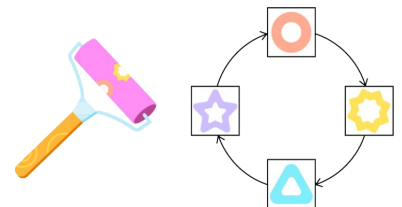


Due to some transmission errors, a small cloud may have been mistakenly represented as a large one, or vice versa. Based on the code table, what is the correct weather forecast indicated by this pattern?

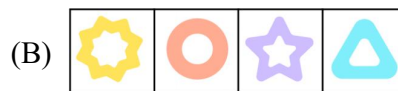
- (A) Heavy Rain (B) Light Rain (C) Cloudy (D) Sunny

6. Rolling Pattern

A child found a magical rolling cylinder that prints four different patterns in sequence as it rolls forward or backward.



Which of the following is NOT a pattern produced by this rolling cylinder?



Part B: Questions 7–9



Each question has three sub-questions, worth 2 points each.

Each answer is an integer between 0 and 99.

7. Robots Collecting Trash

The map below shows a park with numbers indicating the amount of trash left by visitors. Two robots, A and B, collect all trash they find in the park according to their respective routes.

Robot A's route: $\uparrow \uparrow \leftarrow$, Robot B's route: $\uparrow \leftarrow \uparrow$

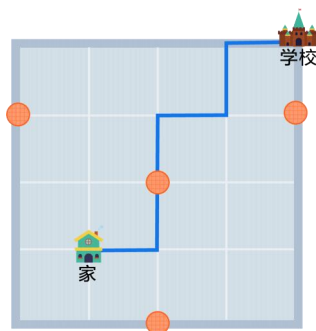
1	3	1
0	8	6
0	1	3
1		

- Question 1: How much trash does Robot A collect?
- Question 2: How much trash does Robot B collect?
- Question 3: How much more trash does the robot that collects more trash pick up compared to the other robot?

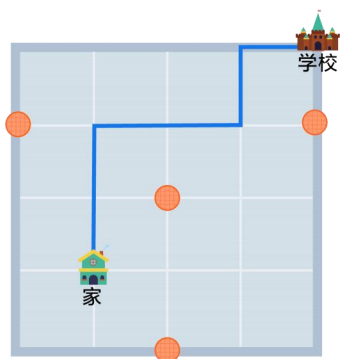
8. The Way to School

There are several paths from the school to the child's home. Each section of the route takes 1 minute, and red dots at intersections indicate traffic lights, which require a 1- minute stop.

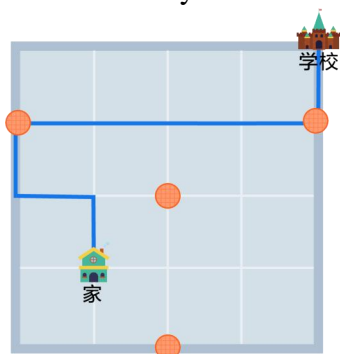
For example, the route taken yesterday took 7 minutes.



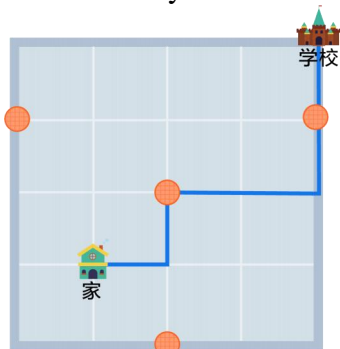
Question 1: How many minutes does this route take to get to school?



Question 2 : How many minutes does this route take to get to school?

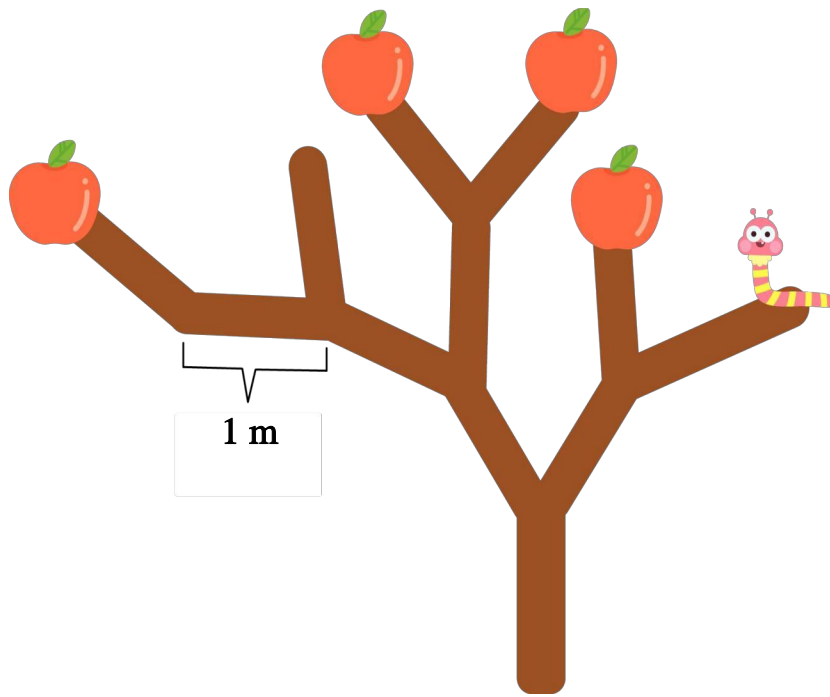


Question 3 : How many minutes does this route take to get to school?



9. The Hungry Worm

A worm sits at the end of a branch and wants to eat apples scattered along the branch. Each section of the branch is 1 meter long.



- Question 1: What is the minimum distance the worm must crawl to reach the closest apple?
- Question 2: What is the minimum distance the worm must crawl to reach the farthest apple?
- Question 3: What is the minimum distance the worm must crawl to eat all the apples?

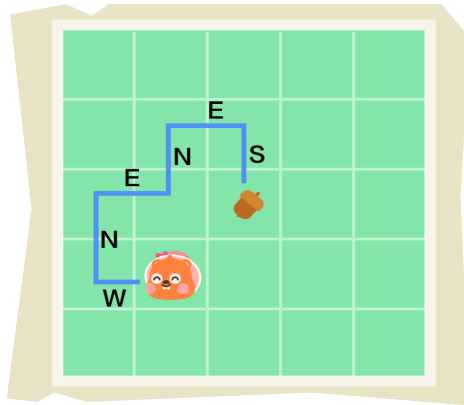
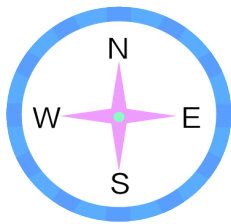
Part A: Questions 1–6

单选题（每题3分）

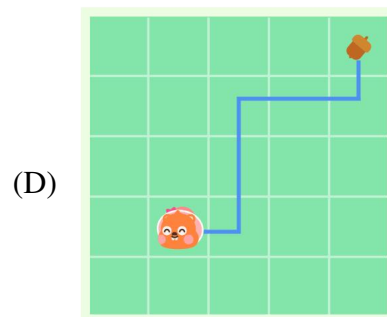
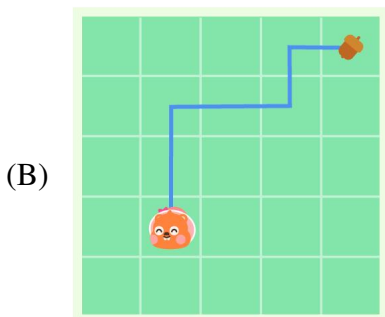
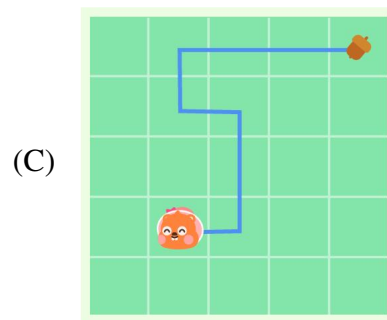
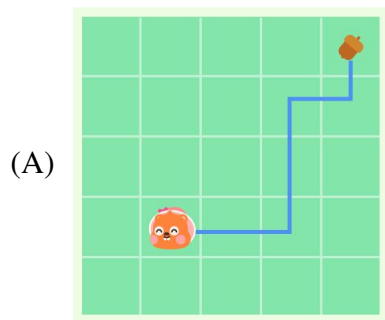
1. 采松果的小松鼠

小松鼠要到森林里采集松果，妈妈给他带上了一个如左下图所示的方向计。妈妈还给了她一张纸条，纸条上写着今天应该行走的方向指令，依据这个指令就能采到松果。

例如：方向指令WNEENES，小松鼠的行走的路线如右下图所示。

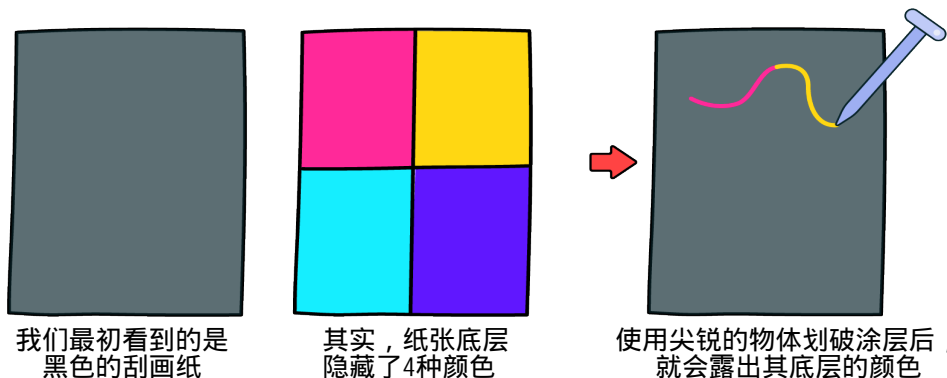


这次妈妈给小松鼠的指令是NNEENE，如下哪个是小松鼠的行走轨迹。

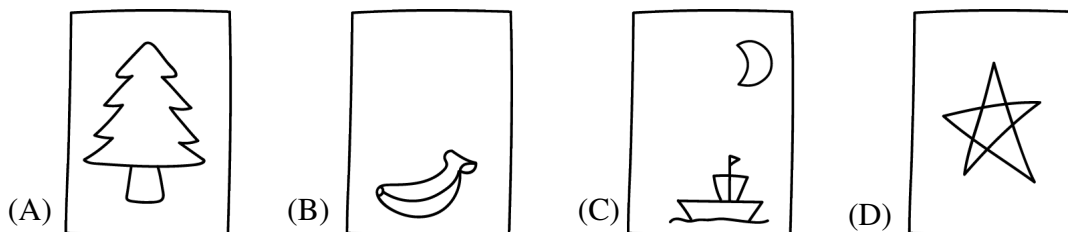


2. 神奇的刮画

刮画纸是一种表层有黑色涂层，底层颜色明亮的特殊纸。我们可以用尖锐的物体去除黑色涂层，露出底层的颜色，这样就可以在刮画纸上画出一副漂亮的图画。



请问当使用尖锐物体绘制以下图画时，哪张图片会显示出3种颜色？



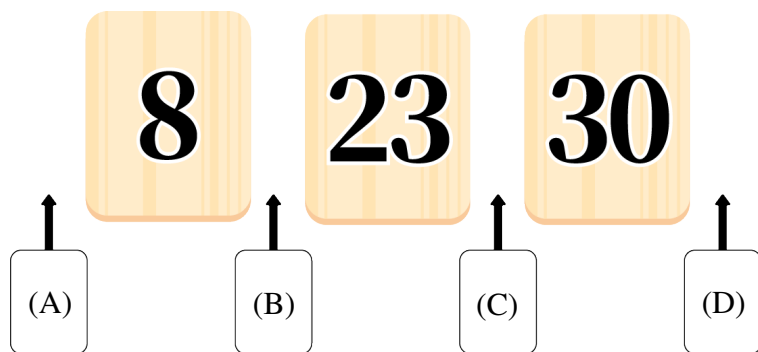
3. 整理积木

小朋友从篮子里拿积木，积木上有1-30的编号，他想把积木从筐中一个一个拿出来并按照1-30从小到大的顺序排序。

他想出一种办法：先拿出一个积木放到桌子上，然后再拿出一个另一块积木，如果第二次拿出的积木数字比第一次拿出的大就放到第一块积木的右边，如果第二次拿出的积木比第一次小就放到第一次积木的左边。



现在他已经拿出了三块积木放好了，接下来他拿出了积木19，请问19应该放入哪个位置？



4. 猜猜我叫什么？



小狐狸给自己取了一个卢恩密语的名字，他根据自己真实名字的字母按照下图所示的表格进行转换。

ƒ	U	th	A	R	<	X	P
F	U/V	th	A	R	K/C	G	W
H	t	l	Y	i	P	Z/X	S
H	N	li	Y	i	P	Z/X	S
↑	B	M	M	L	ng	O	D
T	B	E	M	L	ng	O	D

如果他的卢恩密语的名字叫：



那么小狐狸真实名字叫什么？

(A) mfd





















(B) dae

(C) dfe

(D) dam

5. 天气预报

动物世界发明了一种信号云，使用不同的大小的云朵来表示天气状况。

			
			
			
			
			
暴雨	小雨	多云	晴朗

有一天，海岛上的小猴子看到了如下图案：



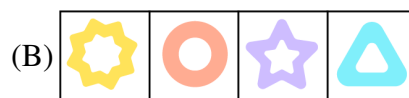
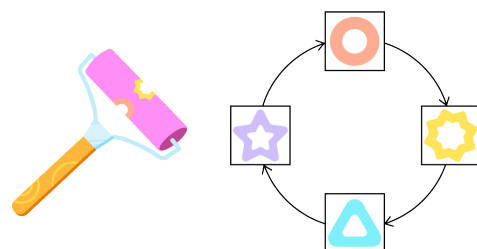
因为传递信号中间出现了一些错误，错误是：有一朵小烟雾云被误认为是一朵大烟雾云或者是一朵大烟雾云被误认为是一朵小烟雾云。

请问根据编码表，观测到的图案所表示的正确的信息，应该是哪一个？

- (A) 暴雨 (B) 小雨 (C) 多云 (D) 晴朗

6. 滚动的图案

小朋友找到一个能印出四种图案的神奇滚筒，滚筒滚动过程中，图案会按照顺序依次出现，箭头所示即为向前滚动一周的图案排列顺序（滚筒也可以向后滚动作画）。请问，下面那个图案不是滚动滚出的图案？





Part B: Questions 7–9

每一个大题有三个小题，每题2分。
每小题的答案都是一个介于0–99的整数。

7. 机器人收垃圾

下图为公园地图。每个方块中的数字代表游客留下的垃圾数量。公园有两个机器人，A机器人和B机器人，它们收集它们在公园里找到的所有垃圾。机器人按照箭头指示进入不同的方块中并收集方块里的所有垃圾。（每次操作前，垃圾会恢复原状。）

A机器人的运动路线是：↑ ↑ ← ，B机器人的运动路线是：↑ ← ↑

1	3	1
0	8	6
0	1	3
1		

问题1：A收集多少垃圾？

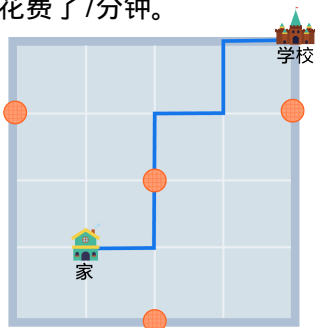
问题2：B收集多少垃圾？

问题3：收集垃圾多的机器人比收集垃圾少的机器人多收集多少垃圾？

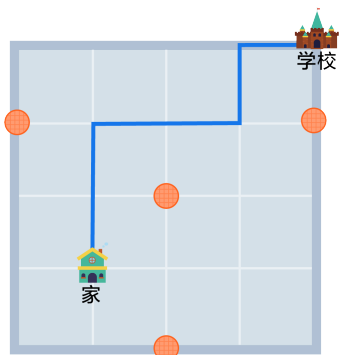
8. 上学的路

从小朋友的学校到家有很多条道路可以选择，在地图上每个路段行驶都需要花费1分钟的时间。十字路口的红点表示交通灯，遇到交通灯需要停留1分钟。

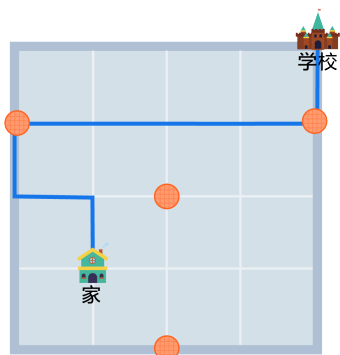
例如：昨天小朋友所走的路线如图，花费了7分钟。



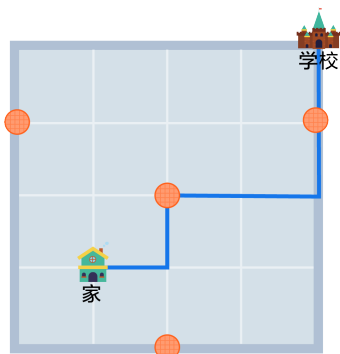
问题1：下面这条上学的路，需要花费几分钟？



问题2：下面这条上学的路，需要花费几分钟？

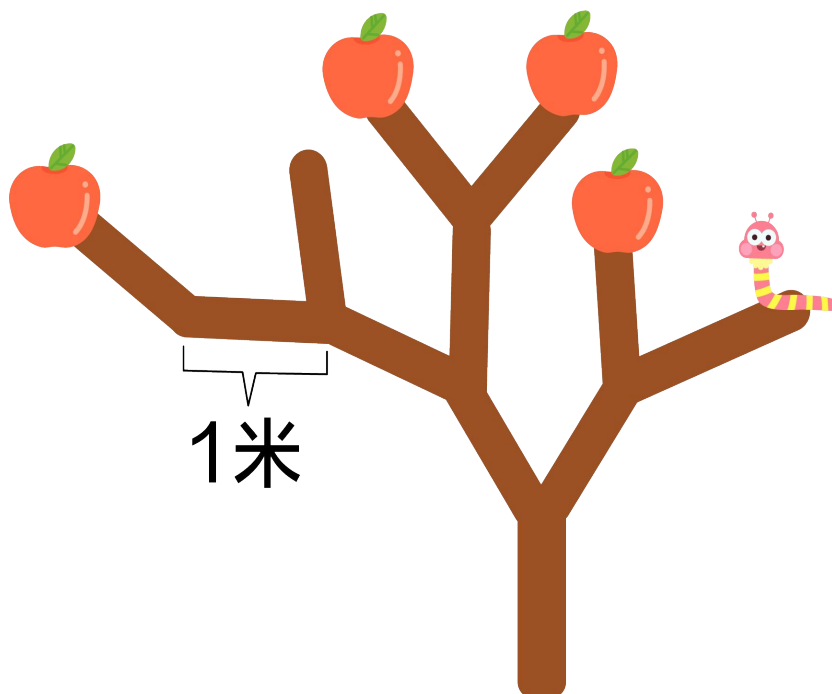


问题3：下面这条上学的路，需要花费几分钟？



9. 贪吃的虫子

一只虫子正坐在一棵大树的树枝的末端。它想要通过在树枝上移动来吃掉苹果（树枝的每个部分都有1米长）。



问题1：吃掉距离它最近的苹果最少需要爬几米？

问题2：吃掉距离它最远的苹果最少需要爬几米？

问题3：吃掉所有苹果最少需要爬几米？