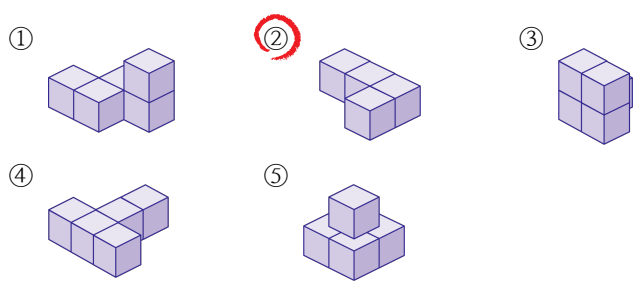
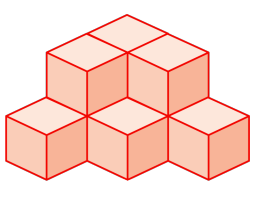
1. 다음 중 쌓기나무의 개수가 다른 것은 어느 것입니까?

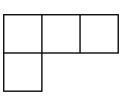


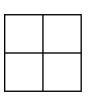
해설

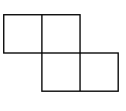
①, ③, ④, ⑤는 쌓기나무가 5개씩이고,
②는 4개입니다.

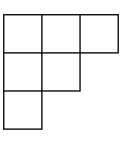
2. 그림은 쌓기나무 9 개로 쌓은 것입니다. 이 쌓기나무의 바탕 그림으로 알맞은 것은 어느 것입니까?

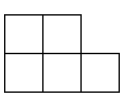


① 

② 

③ 

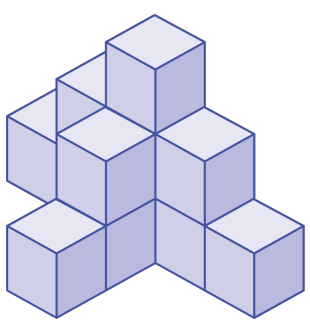
④ 

⑤ 

해설

바탕 그림은 쌓기나무 모양을 위에서 본 모양이므로 위에서 본 모양을 찾습니다.

3. 다음 그림은 규칙에 따라 쌓기나무를 쌓은 것입니다. 규칙을 찾아 쓴 것으로 옳은 것은 어느 것입니까?



① 아래로 내려갈수록 쌓기나무가 줄어듭니다.

② 아래로 내려갈수록 쌓기나무가 2개, 4개, 6개로 늘어납니다.

③ 아래로 내려갈수록 쌓기나무가 1개, 3개, 5개로 늘어납니다.

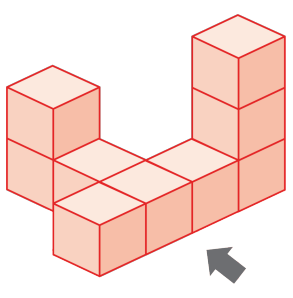
④ 아래로 내려갈수록 쌓기나무가 엇갈려 있습니다.

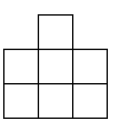
⑤ 아래로 내려갈수록 쌓기나무가 3개씩 늘어납니다.

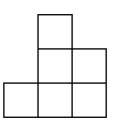
해설

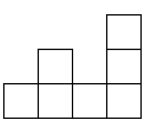
3층 : 1개, 2층 : 4개, 1층 : 7개로 아래로 내려갈수록 쌓기나무가 3개씩 늘어나는 규칙입니다.

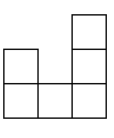
4. 다음 쌓기나무를 옆에서 본 모양은 어느 것입니까?

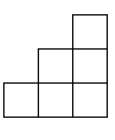


① 

② 

③ 

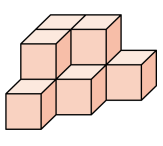
④ 

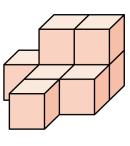
⑤ 

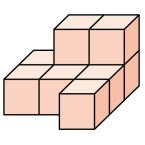
해설

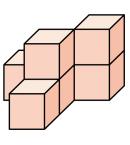
화살표 방향으로 보면 왼쪽에서부터 1층, 2층, 1층, 3층으로 보입니다.

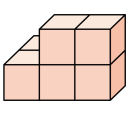
5. 다음 중 앞에서 본 모양이 다른 하나를 고르시오.

① 

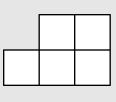
② 

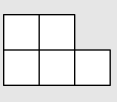
③ 

④ 

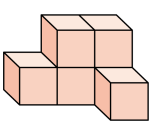
⑤ 

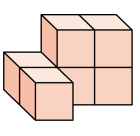
해설

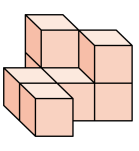
②, ③, ④, ⑤의 앞의 모양은  이고,

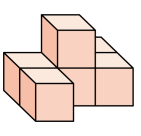
①은  입니다.

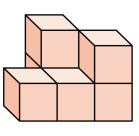
6. 앞에서 본 모양을 그렸을 때, 나타나는 정사각형의 개수가 다른 하나를 고르시오.

① 

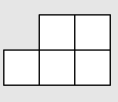
② 

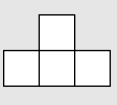
③ 

④ 

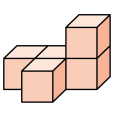
⑤ 

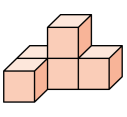
해설

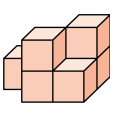
앞의 모양은 ①, ②, ③, ⑤은  이고,

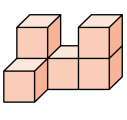
④ 은  입니다.

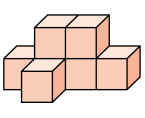
7. 다음 중 오른쪽 옆에서 본 모양이 다른 하나는 어느 것입니까?

① 

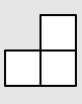
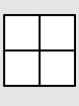
② 

③ 

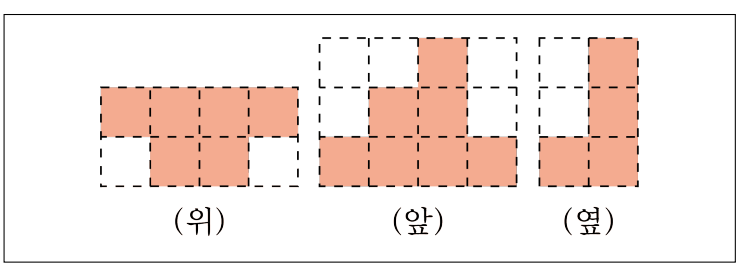
④ 

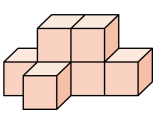
⑤ 

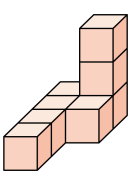
해설

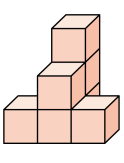
①, ②, ④, ⑤의 오른쪽에서 본 모양은  이고, ③은  입니다.

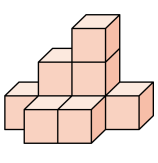
8. 다음은 쌓기나무로 쌓은 모양을 위, 앞, 옆에서 본 모양대로 그린 것입니다. 어떤 모양을 그린 것입니까?

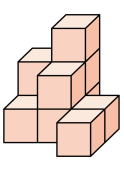


①


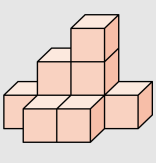
②


③


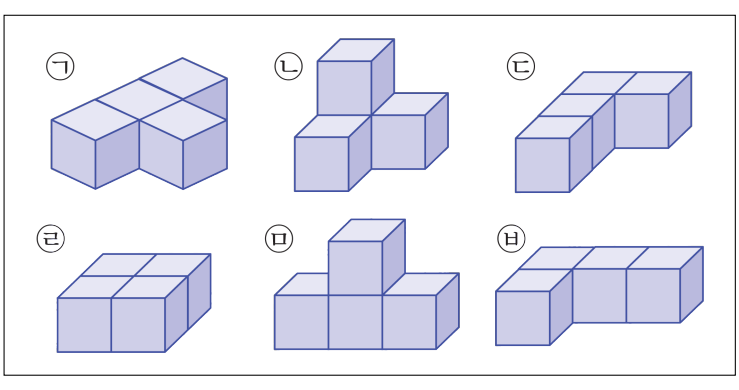
④


⑤


해설



9. 다음 중 같은 쌓기나무를 바르게 짝지은 것은 어느 것입니까?

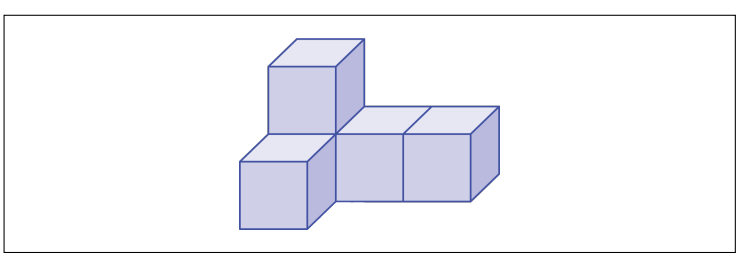


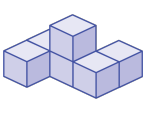
① ㉠,㉢ ② ㉢,㉤ ③ ㉡,㉤ ④ ㉢,㉥ ⑤ ㉠,㉥

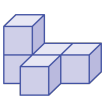
해설

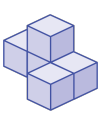
그림 중에 같은 쌓기나무는 ㉠, ㉤과 ㉢, ㉥입니다.
→ ④

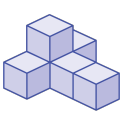
10. 다음 쌓기나무와 모양이 같은 것은 어느 것입니까?

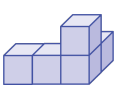


①


②


③


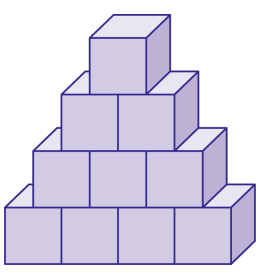
④


⑤


해설

같은 모양이라도 보는 방향에 따라 달라 보일 수 있습니다. 여러 조각을 나누어 비교하면, 보기의 그림의 뒷모습이 ⑤가 됨을 알 수 있습니다.

11. 다음과 같은 규칙의 쌓기나무가 있습니다. 그림의 규칙으로 맞지 <u>않는</u> 것은 어느 것입니까?



① 아래로 내려갈수록 1개씩 늘어납니다.

② 위로 올라갈수록 1개씩 줄어듭니다.

③ 각층끼리 엇갈리게 쌓았습니다.

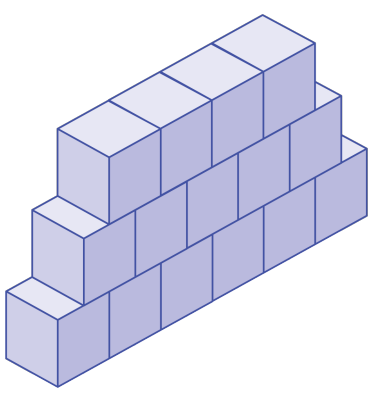
④ 위로 올라갈수록 2개씩 줄어듭니다.

⑤ 층마다 쌓기나무 개수가 다릅니다.

해설

아래에서 위로 올라갈수록 4 – 3 – 2 – 1 쌓기나무가 1개씩 줄어듭니다.

12. 쌓기나무로 그림과 같은 모양을 만들어 보고, 규칙을 바르게 말한 것을 고르시오.



① 위로 올라갈수록 3개씩 줄어듭니다.

② 위로 올라갈수록 2개씩 늘어납니다.

③ 위로 올라갈수록 1개씩 늘어납니다.

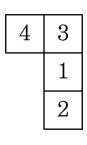
④ 위로 올라갈수록 2개씩 줄어듭니다.

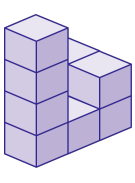
⑤ 위로 올라갈수록 1개씩 줄어들고 엇갈려 쌓았습니다.

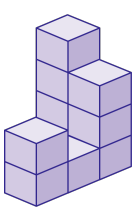
해설

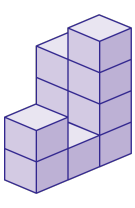
층마다 쌓기나무가 엇갈려 있고 1층은 6개, 2층은 5개, 3층은 4개로 1개씩 줄어드는 규칙입니다.

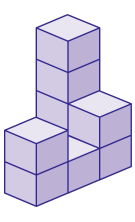
13. 다음 바탕 그림 위에 [ ] 안에 있는 수만큼 쌓기나무를 쌓으면 어떤 모양이 되겠는지 고르시오.

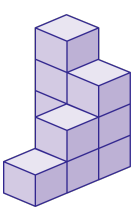


①


②


③


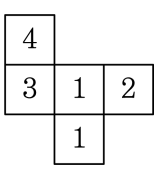
④


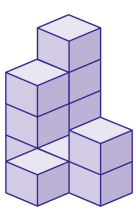
⑤


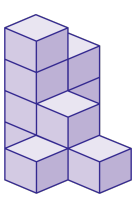
해설

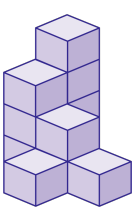
바탕 그림 위의 번호는 쌓기나무의 수를 나타냅니다.
따라서 ㄱ자 모양에서 4개, 3개, 1개, 2개를 쌓아 놓은 것은 ② 번입니다.

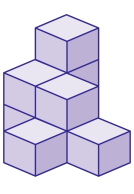
14. 왼쪽의 바탕 그림 위에 [ ] 안에 있는 수만큼 쌓기나무를 쌓으면 어떤 모양이 되겠습니까?

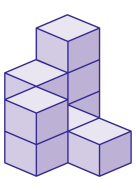


① 

② 

③ 

④ 

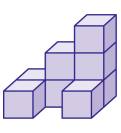
⑤ 

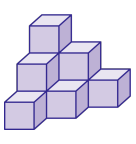
해설

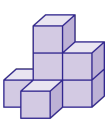
바탕 그림 위의 쌓기나무의 수에 맞는 모양을 찾습니다.

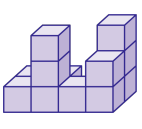
15. 다음 그림은 어떤 모양을 쌓는 데 필요한 쌓기나무의 개수를 나타낸 것입니다. 다음 그림이 나타내는 모양은 어느 것입니까?

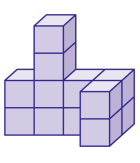
1	1	0	3
1	3	1	2

①


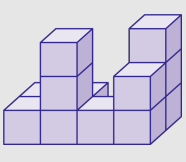
②


③


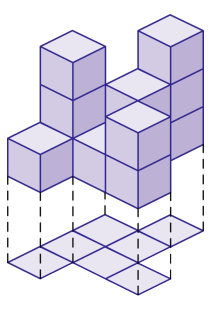
④


⑤


해설



16. 다음 13개의 쌓기나무 중 2층의 쌓기나무를 모두 빼면 몇 개의 쌓기나무가 남습니까?

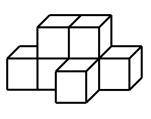


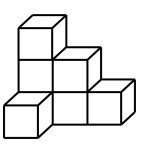
① 6개 ② 7개 ③ 8개 ④ 9개 ⑤ 10개

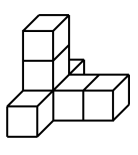
해설

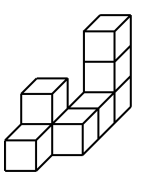
1층 : 7개, 2층 : 4개, 3층 : 2개
2층을 뺀 나머지는 1층과 3층의 쌓기나무 개수를 합한것인
$7 + 2 = 9$(개)
따라서 9개입니다.

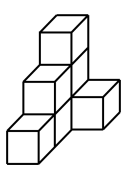
17. 다음은 여러 개의 쌓기나무를 이용하여 만든 모양입니다. 사용된 쌓기나무의 개수가 다른 것은 어느 것인지 고르시오.

①


②


③


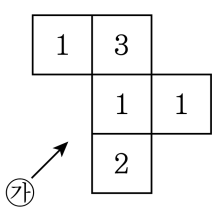
④


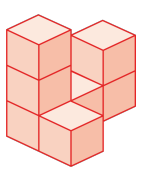
⑤


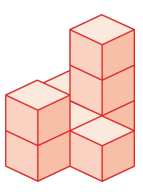
해설

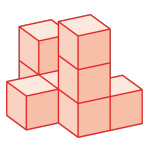
①, ②, ③, ⑤ : 7개
④ : 8개

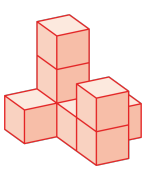
18. 아래 그림에서 □ 안에 있는 수는 그 위에 쌓기나무의 개수를 나타낸 것입니다. ㉮ 방향에서 바라 본 모양은 어느 것입니까?

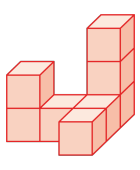


①


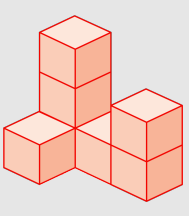
②


③


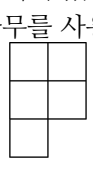
④


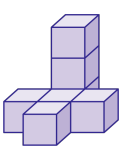
⑤


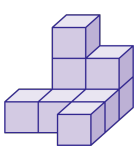
해설

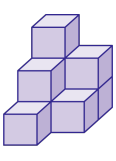


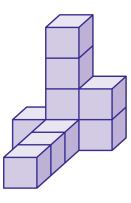
19. 다음이 설명하는 모양을 찾으시오.

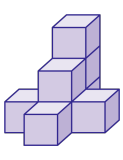
· 전체 3층으로 이루어져 있습니다.
· 모두 9개의 쌓기나무를 사용하였습니다.
· 위에서 본 모양은  입니다.

①


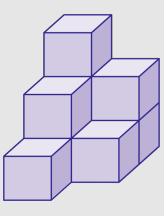
②


③


④


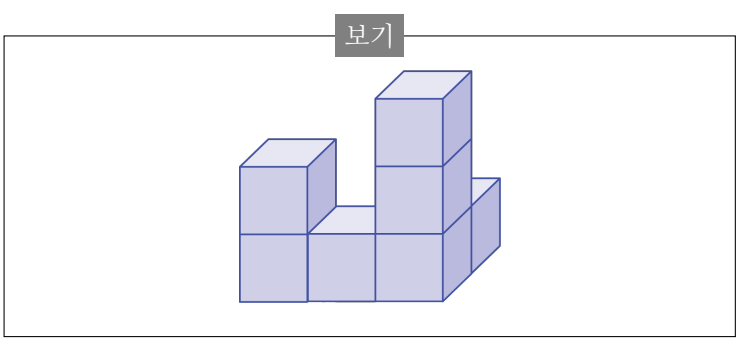
⑤


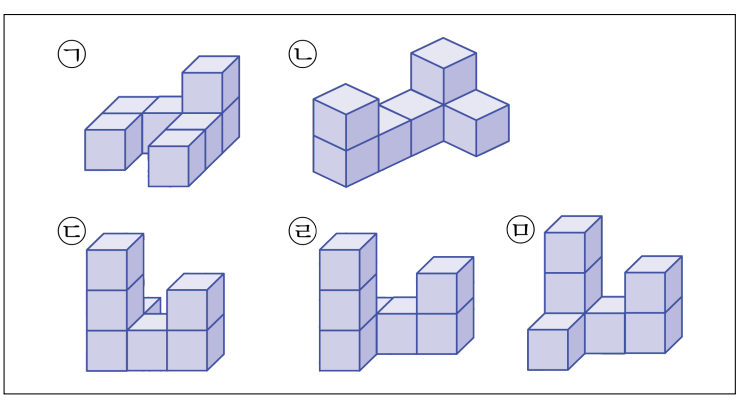
해설



20. 다음 [보기]와 같은 모양의 쌓기나무로 바르게 짝지어진 것은 어느 것입니까?

보기



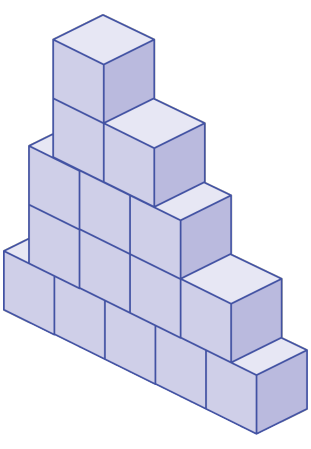


① ㉠, ㉡　② ㉠, ㉢　③ ㉢, ㉤　④ ㉣, ㉤　⑤ ㉠, ㉤

해설

같은 모양이더라도 보는 방향에 따라 다르게 보입니다.
㉠: [보기]의 쌓기나무의 앞부분을 바닥으로 붙인 모양
㉤: [보기]의 쌓기나무를 180도 회전하여 앞, 뒤가 바뀐 모양

21. 다음 쌓기나무로 쌓은 모양의 규칙을 잘못 말한 것을 모두 고르시오.



① 아랫줄에 엇갈리지 않게 쌓은 줄은 밑에서 셋째 번 줄과 다섯째 번 줄입니다.

② 쌓기나무의 개수를 1 개씩 줄여가며 쌓았습니다.

③ 아랫줄에 엇갈리게 쌓은 줄은 밑에서 둘째 번 줄과 다섯째 번 줄입니다.

④ 쌓기나무의 개수를 1 개씩 늘여가며 쌓았습니다.

⑤ 쌓기나무의 개수를 2 개씩 줄여가며 쌓았습니다.

해설

③ 아랫줄에 엇갈리게 쌓은 줄은 밑에서 둘째 번 줄과 넷째 번 줄입니다.

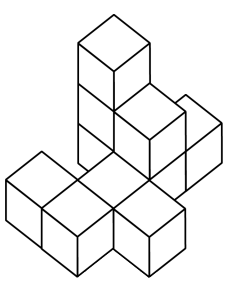
22. 크기가 같은 정육면체 모양의 쌓기나무 여러 개를 쌓아 정육면체를 만들려고 합니다. 넷째 번으로 작은 정육면체를 만들 때, 필요한 쌓기나무는 모두 몇 개입니까? (단, 쌓기나무는 2개 이상 사용되어야 합니다.)

① 216 개 ② 125 개 ③ 64 개
④ 81 개 ⑤ 27 개

해설

첫 번째 모양 : $2 \times 2 \times 2 = 8$
두 번째 모양 : $3 \times 3 \times 3 = 27$
세 번째 모양 : $4 \times 4 \times 4 = 64$
네 번째 모양 : $5 \times 5 \times 5 = 125$
다섯 번째 모양 : $6 \times 6 \times 6 = 216$

23. 다음 쌓기나무에서 위에서 본 모양이 변하지 않게 하는 조건으로 쌓기나무 한 개를 더 포함할 때 올릴 수 있는 방법은 몇 가지 입니까?

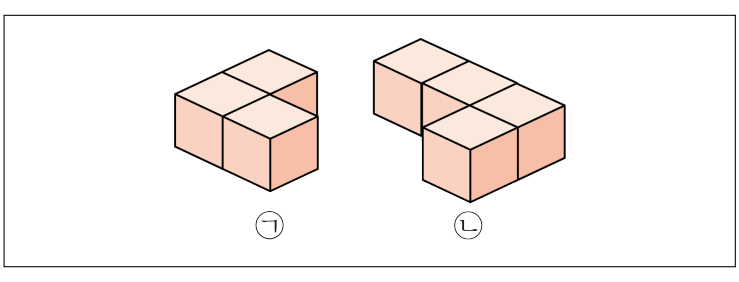


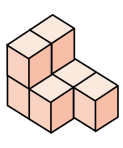
① 4가지 ② 5가지 ③ 6가지
④ 7가지 ⑤ 8가지

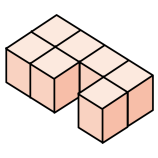
해설

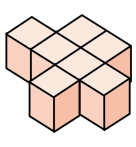
바탕 그림이 변하지 않으려면, 번호 마다 쌓여 있는 쌓기나무 위에 한번 씩 올려 넣을 수 있으므로 7가지입니다.

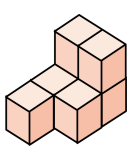
24. ㉠과 ㉡으로 만들 수 <u>없는</u> 모양은 어느 것인가?

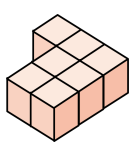


①


②


③


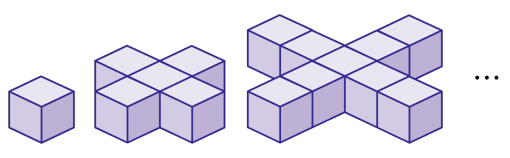
④


⑤


해설

쌓기나무개수는 같지만 ③모양을 만들 수 없습니다.

25. 다음과 같은 규칙에 따라 쌓기나무를 열째 번 모양까지 쌓으려고 할 때, 필요한 쌓기나무의 개수는 모두 몇 개 입니까?



① 37 ② 152 ③ 186 ④ 190 ⑤ 194

해설

그림의 쌓기나무는 $1-5-9-\cdots$ 로 4개씩 커지는 규칙을 가지고 있습니다.
따라서 열째 번까지 쌓을 때 필요한 쌓기나무의 수는
$1+5+9+13+17+21+25+29+33+37=38\times5=190$
따라서 190개입니다.